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TECHNICAL MEMORANDUM

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From: David A. Crandall, Sarika Gupta

Date: April 4, 2005

Subject: Noise Analysis for Omaha Airspace Redesign Environmental Assessment

Reference: HMMH Job No. 299640.100



1. INTRODUCTION

Northrop Grumman Information Technologies (NGIT) has retained Harris Miller Miller & Hanson Inc. (HMMH) to assist with the preparation of an Environmental Assessment (EA) for the Omaha Airspace Redesign (OAR). This project potentially affects three commercial/military airports: Eppley Field (OMA), Lincoln Municipal Airport (LNK), and Offutt Air Force Base (OFF).

HMMH's role is to prepare the noise element of the EA consistent with Federal Aviation Administration (FAA) Order 1050.1E, Appendix A, Section 14. This assistance can be summarized by the following tasks:

- Research and obtain existing data to establish an operational database for use in the Federal Aviation Administration's (FAA's) approved noise model, the Integrated Noise Model (INM).
- Generate Day-Night Average Sound Level (DNL) noise exposure levels using the Noise Integrated Routing System (NIRS) for existing (2003) and future (2006, 2011) cases.
- Determine if the FAA's criteria for noise increases will be exceeded by the proposed action.
- Document the analysis with a memorandum describing the methodology and results.

Section 2 of this memorandum describes the methodology and input data used for the noise analysis. Section 3 summarizes the results compared to FAA criteria. Appendix A presents the description of the proposed action as provided by FAA.

2. NOISE MODELING METHODOLOGY AND DATA INPUTS

FAA Order 1050.1E specifies that one of three noise models, FAA's Integrated Noise Model (INM), its Heliport Noise Model (HNM), or its Noise Integrated Routing System (NIRS), should be used for an Environmental Assessment¹. The HNM is for heliports and therefore would not be an appropriate model for this analysis. The INM or NIRS can be used to evaluate flight track changes, such as the proposed action of the EA. However, NIRS is the desired model for projects that consider multiple

¹ Other methodology and computer models can be used with prior written approval from FAA's Office of Environment and Energy (AEE). (FAA Order 1050.1E, Appendix A, Section 14.2b).

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airports, broad area assessments, or include action above 3,000 ft AGL². This project contains all three of these characteristics and therefore NIRS is selected as the noise model for preparation of the OAR EA.

FAA Order 1050.1E specifies that analysis for the EA should be done with the yearly Day-Night Average Sound Level (YDNL or DNL) noise metric. In accordance with FAA Order 1050.1E, this analysis considers the noise exposure for the following five (5) scenarios:

- Existing Conditions (2003);
- First year of proposed implementation (2006) – No Action;
- First year of proposed implementation (2006) – Proposed Action;
- Future year of proposed implementation (2011) – No Action; and
- Future year of proposed implementation (2011) – Proposed Action.



The 2006 Proposed Action DNL contours will be compared to the 2006 No Action DNL contours to determine if there are any increases in noise levels that will meet or exceed FAA's criteria.

Likewise, the 2011 Proposed Action DNL contours will be compared to the 2011 No Action DNL contours and evaluated with respect to FAA's criteria³.

The NIRS requires inputs in a number of categories, including:

- Study Area Description: The geometric area that defines the study boundaries
- Airfield Geometry: Location, length, orientation, elevation, and thresholds of all runways;
- Operations Numbers: Numbers of departures, arrivals and pattern operations by each type of aircraft during an "annual average day";
- Runway Use: Percentage of operations by each type of aircraft that occur on each runway;
- Flight Tracks: Paths followed by aircraft departing from, or arriving to, each runway;
- Flight Track Usage: Percentage of operations by each aircraft type that use each flight track.
- Aircraft Noise and Performance: The NIRS model includes noise and performance for over 120 aircraft/engine combinations ;
- Metrological conditions: Average weather conditions can affect aircraft performance and sound propagation.
- Modeling Points: Specific points that represent potential noise-sensitive land use within the study area.

Data for this project came from various sources and were used for many of the input categories discussed above. Several of the primary sources of data are listed below, while additional sources are later discussed as appropriate.

- Radar data. The FAA provided HMMH with a 60-day sample of data from the R90 TRACON's Automated Radar Terminal System (ARTS) IIIA system. The radar data were from summer and fall 2003⁴.
- The Lincoln Airport Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study (LNK Part 150). The Lincoln Airport Authority completed the study and prepared two separate documents. The Noise Exposure Map (NEM) was completed in February 2003 and

² FAA Order 1050.1E, Appendix A, Section 14.5e.

³ FAA's criteria for airspace related EAs is defined in FAA Order 10501.E, specifically Appendix A, Section 14.3, 14.4, and 14.5e.

⁴ The data sample was actually 66 days, however six days were not deemed suitable for this analysis. The data sample included 7/9 – 7/10/2003, 8/10 – 9/25/2003, and 10/19 – 11/4/2003. Data for 7/9/2003 7/10/2003, 8/10/2003, 8/19/2003, 9/17/2003, and 9/21/2003 were not considered representative of average annual day conditions, and therefore not included in the analysis.

the Noise Compatibility Program (NCP) was completed approximately September 2003. The FAA found the NEM in compliance with applicable requirements on September 26, 2003 and approved various portions of the NCP on June 7, 2004⁵. None of the NCP measures approved would affect this project and this project should not hinder implementation of any of the NCP measures.

HMMH's assumptions and data collection processes for each of these items are discussed below.

2.1 Study Area Description



The study area for this project is centered around the R90 ASR-9 radar antenna. The ASR-9 radar antenna collects data for the ARTS IIIA systems and the same device that captured the 60-day sample. The study area is a 55 nautical mile circle around the ASR-9, which is located at a latitude of 41.143058 degrees North and a longitude of 95.903747 degrees West, referenced to the North American Datum of 1983. This location is situated in Bellevue, Nebraska.

Within NIRS, the study elevation was set to 984 ft MSL, the same elevation as OMA. The NIRS model was set to a maximum altitude of 18,000 ft MSL. Other NIRS project settings are presented in Section 2.6.

2.2 Airport Layout

The layout of an airfield is an important modeling input. Accurate runway information places modeled flights in the correct locations. Elevation data allow the INM to calculate runway gradients, which influence modeled take-off roll and landing distances.

The runway information for OMA, LNK, and OFF, including runway end locations, elevations, displaced thresholds, and the location and elevation of the airport reference point were taken from FAA data, as published by www.airnav.com.

Runway information for OMA, LNK, and OFF is presented in Table 1.

⁵ Federal Register: July 27, 2004 (Volume 69, Number 143)
Pages 44708-44709

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Table 1 Runway Information

Runway	Latitude (decimal degrees)	Longitude (decimal degrees)	Elevation (feet, Mean Sea Level)	Displaced Arrival Threshold (feet)
OMA				
14R	41.313842	-95.906085	984.0	0
14L	41.310230	-95.897280	982.4	0
18	41.313350	-95.894509	981.2	140
32R	41.294564	-95.882406	981.1	0
32L	41.292640	-95.885951	980.3	0
36	41.290974	-95.894625	977.6	0
LNK				
14	40.867304	-96.769675	1198.5	363
17R	40.862993	-96.761673	1195.0	0
17L	40.861344	-96.750752	1218.5	0
32	40.847851	-96.751759	1176.7	470
35R	40.846525	-96.750848	1175.8	0
35L	40.827586	-96.761901	1174.6	0
OFF				
12	41.129722	-95.925291	1048.0	1000
30	41.109166	-95.892233	971.0	1100

Note: All coordinates referenced to North American Datum 1983 (NAD 83)

2.3 Aircraft Operations

Operations for the three study years were derived from several sources. OMA and LNK total operations for 2003 were derived from FAA Tower counts, as reported by FAA's Air Traffic Activity Data System (ATADS). OMA and LNK total operations for the 2006 and 2011 forecasts were derived from the FAA's January 2004 edition of the Terminal Area Forecast (TAF). Both the ATADS and the TAF are available at <http://www.apo.data.faa.gov>. The ATADS and TAF data present data in four categories.

- Air Carrier – This category includes commercial aircraft capable of carrying 60 or more passengers. Cargo aircraft that could carry 60 or more passengers, if configured for passenger service, would also fall into this category.
- Air Taxi – This category includes commercial aircraft that do not fall into the Air Carrier category. Regional jets, commuter turboprops, small cargo aircraft, and many fractional-ownership corporate jets fall into this category.
- General Aviation – This category includes any civilian aircraft that do not fall into the above categories. Typically these aircraft include flight school operations and private aircraft, including single engine piston aircraft and non-fractional ownership corporate jets.
- Military – All classes of military operations.

General Aviation and Military operations are further broken down into local and itinerant operations. Local operations remain within the vicinity of the respective airport, while itinerant operations either originate at or depart to other non-Project airports.

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The historical tower counts and TAF projections for OMA and LNK are presented in Table 2.

Table 2 FAA Tower Counts and Forecasts for OMA and LNK

Year	Source	Air Carrier	Air Taxi	General Aviation	Military	General Aviation	Military	Total Annual Operations
OMA								
2003	ATADS	42444	39131	40032	1066	17750	983	141406
2006	TAF (1/2004)	45194	42484	41952	1001	19422	879	150932
2011	TAF (1/2004)	47566	49399	44890	1001	21109	879	164844
LNK								
2003	ATADS	330	18684	36146	15749	15619	5652	92180
2006	TAF (1/2004)	873	19608	37007	15901	16662	5821	95872
2011	TAF (1/2004)	873	21763	37007	15901	16662	5821	98027

Source: <http://www.apo.data.faa.gov>

NIRS requires that the user assign a specific aircraft type from NIRS's standard database to each operation. In addition, the day-night split of aircraft operations is important with the DNL metric. A nighttime operation, defined as an operation between 10 PM and 7 AM, is penalized 10 dB, or in simple terms, the event is weighted as if it occurred ten times to account for increased sensitivity to nighttime noise. The NIRS standard database includes one or more take-off weights for each aircraft. Take-off weights are assigned based on distance to the aircraft's destination base on information published in the Official Airline Guide.

OMA operations listed in Table 2 were assigned to specific representative NIRS model types using the 60-day sample of radar data. Operations for General Aviation Local and Military Local were grouped with the respective itinerant category. Table 3, Table 4 and Table 5 contain a summary breakdown of the daily operations for the existing (2003) and future cases (2006 and 2011) for OMA, respectively.

LNK operations listed in Table 2 were assigned to specific representative NIRS model types by interpolating and scaling the 2002, 2007 and 2022 operations presented in the LNK Part 150 Study⁶. Table 6, Table 7, and Table 8 contain a summary breakdown of the daily operations for the existing (2003) and future cases (2006 and 2011) for LNK, respectively.

Operations for OFF were estimated based on the radar data sample. Two techniques were used independently to determine the number of operations. The first technique counted the number of aircraft crossings through a fictitious "pen" around OFF's single runway. The second technique counted the number of times aircraft passed within close proximity of either of OFF's runway ends. Both techniques were compared to the duration of radar coverage and scaled to average annual conditions. These methods estimated the number of annual operations at OFF to be between 27,143 and 28,168. For the purpose of this project OFF is assumed to have had 28,000 annual operations in calendar year 2003. Since OFF is a military facility, operations there are not influenced by market demand, as is the case for commercial airports like LNK and OMA. Therefore this analysis assumes that OFF operations will remain constant throughout each forecast year for this project. OFF operations were assigned to specific representative NIRS model types using the 60-day sample of radar data. Table 9 contains a summary breakdown of the daily operations for the existing (2003) and future cases (2006 and 2011) for OFF.

⁶ Specifically, Table 2D of the LNK Part 150.

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Table 3 Existing Operations (2003) at OMA

Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
Air Carrier	717200	0.3	<0.1	0.2	0.1
	727EM1	0.1	1.2	1.1	0.2
	737300	15.1	1.6	16.6	0.1
	737500	5.2	0.3	5.4	0.1
	737700	4.7	1.0	5.7	<0.1
	737N17	0.5	<0.1	0.5	0.0
	747200	<0.1	0.0	<0.1	0.0
	757PW	1.5	1.4	1.7	1.2
	767CF6	<0.1	0.0	<0.1	0.0
	A300	0.2	<0.1	0.2	<0.1
	A310	0.8	0.6	1.3	0.1
	A319 ⁽¹⁾	1.1	0.4	1.2	0.3
	A320 ⁽²⁾	1.9	0.3	2.2	<0.1
	DC93LW	6.7	2.8	6.1	3.4
	DC95HW	0.5	<0.1	0.5	0.1
	F10062	1.9	0.0	1.9	0.0
	MD81	2.6	0.6	3.0	0.2
	MD82	2.5	0.7	2.3	1.0
	MD83	1.4	0.1	1.4	0.1
	Subtotal	47.0	11.1	51.4	6.7
Regional Jet	BAE146	2.3	<0.1	2.1	0.3
	CL600	1.9	<0.1	1.9	0.0
	CL601	17.8	1.5	19.0	0.4
	EMB145	9.2	2.2	9.4	2.0
	Subtotal	31.3	3.7	32.3	2.7
General Aviation Jet	CIT3	1.2	0.1	1.3	<0.1
	CL600	2.8	0.1	2.7	0.3
	CL601	1.0	<0.1	0.9	0.2
	CNA500	2.2	<0.1	2.1	0.1
	CNA750	1.8	0.1	1.8	<0.1
	FAL20	1.2	0.1	1.1	0.1
	FAL50 ⁽³⁾	2.4	0.1	2.0	0.5
	FAL900 ⁽³⁾	1.3	0.1	1.3	0.1
	GII	0.1	0.0	0.1	0.0
	GIIB	0.1	0.0	0.1	0.0
	GIV	1.4	0.2	1.5	0.0
	GV	0.2	0.0	0.2	0.0
	IA1125	1.6	0.1	1.5	0.2
	LEAR25	1.0	0.2	0.9	0.3
	LEAR35	18.8	0.9	17.3	2.4
	MU3001	8.3	0.4	7.7	1.0
	Subtotal	45.5	2.3	42.5	5.2
Prop	BEC58P	13.6	4.8	10.9	7.5
	CNA172	1.3	0.1	1.4	<0.1
	CNA206 ⁽⁴⁾	2.4	0.1	2.5	<0.1
	COMSEP	<0.1	0.0	<0.1	0.0
	DC3	<0.1	0.0	<0.1	0.0
	GASEPF	1.2	0.1	1.2	0.1



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Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
	GASEPV	4.4	0.3	4.6	0.1
	SD330	2.5	0.6	2.9	0.1
	Subtotal	25.5	6.0	23.6	7.8
Turboprop	CNA20T ⁽⁴⁾	5.2	3.0	1.3	6.9
	CNA441	2.8	0.1	2.7	0.2
	DHC6	6.8	0.1	4.9	2.0
	DHC830	<0.1	0.0	0.0	<0.1
	GASEPV	0.5	<0.1	0.5	0.0
	SD330	<0.1	0.0	<0.1	0.0
	Subtotal	15.3	3.2	9.5	9.1
Military	T37 ⁽⁵⁾	2.8	0.0	2.8	0.0
	Subtotal	2.8	0.0	2.8	0.0
Total		167.4	26.3	162.1	31.6

Notes:

(1) A319 – NIRS does not model the A319 for arrivals. The 737500 is used as a substitute for arrival operations. INM Version 6.1 reports similar noise values for these two aircraft on arrival.

(2) A320 – NIRS does not model the A320 for arrivals. The 737500 is used as a substitute for arrival operations. INM Version 6.1 reports similar noise values for these two aircraft on arrival.

(3) FAL50/FAL900 – These aircraft represent three-engine corporate jets. These aircraft are modeled as 1.5 operations of the LEAR35. The INM 5.1 manual approves creating a user-defined aircraft based on the LEAR35 and adding 1.8 dB to the noise curves. However user defined aircraft cannot be readily created in NIRS. Modeling 1.5 operations has the same effect as added 1.8 dB to the noise curves for energy-equivalent noise metrics like DNL.

(4) CNA206/CNA20T – These aircraft are represented by GASEPV in NIRS (INM 6.0a substitution list)

(5) T37 – This aircraft is represented by the LEAR25 in NIRS (INM 6.1)

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of radar data and FAA ATADS

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Table 4 Future Operations (2006) at OMA

Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
Air Carrier	717200	0.3	<0.1	0.2	0.1
	727EM1	0.1	1.3	1.2	0.2
	737300	16.0	1.7	17.6	0.1
	737500	5.5	0.4	5.8	0.1
	737700	5.0	1.0	6.0	<0.1
	737N17	0.5	<0.1	0.5	0.0
	747200	<0.1	0.0	<0.1	0.0
	757PW	1.6	1.5	1.9	1.2
	767CF6	<0.1	0.0	<0.1	0.0
	A300	0.3	<0.1	0.3	<0.1
	A310	0.9	0.6	1.4	0.1
	A319 ⁽¹⁾	1.2	0.4	1.3	0.3
	A320 ⁽¹⁾	2.1	0.3	2.3	<0.1
	DC93LW	7.1	3.0	6.5	3.6
	DC95HW	0.5	<0.1	0.5	0.1
	F10062	2.0	0.0	2.0	0.0
	MD81	2.7	0.6	3.2	0.2
	MD82	2.7	0.8	2.4	1.0
	MD83	1.5	0.1	1.5	0.1
	Subtotal	50.1	11.8	54.7	7.2
Regional Jet	BAE146	2.5	<0.1	2.2	0.3
	CL600	2.1	<0.1	2.1	0.0
	CL601	19.4	1.7	20.6	0.4
	EMB145	10.0	2.4	10.2	2.2
	Subtotal	34.0	4.1	35.1	2.9
General Aviation Jet	CIT3	1.3	0.1	1.4	0.1
	CL600	3.0	0.2	2.9	0.3
	CL601	1.1	<0.1	0.9	0.2
	CNA500	2.3	0.1	2.2	0.1
	CNA750	1.9	0.1	1.9	0.1
	FAL20	1.3	0.1	1.2	0.2
	FAL50 ⁽¹⁾	2.6	0.1	2.2	0.5
	FAL900 ⁽¹⁾	1.4	0.1	1.4	0.1
	GII	0.1	0.0	0.1	0.0
	GIIB	0.1	0.0	0.1	0.0
	GIV	1.4	0.2	1.6	0.0
	GV	0.3	0.0	0.3	0.0
	IA1125	1.7	0.1	1.6	0.2
	LEAR25	1.1	0.2	1.0	0.3
	LEAR35	20.0	0.9	18.4	2.5
	MU3001	8.8	0.4	8.2	1.0
	Subtotal	48.3	2.4	45.2	5.5
Prop	BEC58P	14.5	5.1	11.6	8.0
	CNA172	1.4	0.2	1.5	<0.1
	CNA206 ⁽¹⁾	2.6	0.1	2.7	<0.1
	COMSEP	<0.1	0.0	<0.1	0.0
	DC3	<0.1	0.0	<0.1	0.0
	GASEPF	1.3	0.1	1.3	0.1
	GASEPV	4.7	0.3	4.9	0.1



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Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
	SD330	2.6	0.6	3.1	0.1
	Subtotal	27.0	6.3	25.1	8.3
Turboprop	CNA20T ⁽¹⁾	5.6	3.3	1.5	7.5
	CNA441	3.0	0.1	2.9	0.2
	DHC6	7.4	0.1	5.3	2.2
	DHC830	<0.1	0.0	0.0	<0.1
	GASEPV	0.5	<0.1	0.5	0.0
	SD330	<0.1	0.0	<0.1	0.0
	Subtotal	16.6	3.5	10.3	9.9
Military	T37 ⁽¹⁾	2.6	0.0	2.6	0.0
	Subtotal	2.6	0.0	2.6	0.0
Total		178.6	28.1	172.9	33.9

Notes:

See Notes in Table 3 for various NIRS model type substitutions
Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of radar data and FAA TAF (Jan. 2004)



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Table 5 Future Operations (2011) at OMA

Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
Air Carrier	717200	0.3	<0.1	0.2	0.1
	727EM1	0.1	1.4	1.3	0.2
	737300	16.9	1.8	18.5	0.1
	737500	5.8	0.4	6.1	0.1
	737700	5.3	1.1	6.3	<0.1
	737N17	0.5	<0.1	0.6	0.0
	747200	<0.1	0.0	<0.1	0.0
	757PW	1.7	1.5	1.9	1.3
	767CF6	<0.1	0.0	<0.1	0.0
	A300	0.3	<0.1	0.3	<0.1
	A310	0.9	0.6	1.4	0.1
	A319 ⁽¹⁾	1.3	0.4	1.4	0.3
	A320 ⁽¹⁾	2.2	0.3	2.4	<0.1
	DC93LW	7.5	3.2	6.9	3.8
	DC95HW	0.6	<0.1	0.5	0.1
	F10062	2.1	0.0	2.1	0.0
	MD81	2.9	0.7	3.3	0.2
	MD82	2.8	0.8	2.5	1.1
	MD83	1.6	0.1	1.6	0.1
	Subtotal	52.7	12.4	57.6	7.6
Regional Jet	BAE146	2.9	<0.1	2.6	0.4
	CL600	2.4	<0.1	2.4	0.0
	CL601	22.5	1.9	23.9	0.5
	EMB145	11.7	2.7	11.9	2.6
	Subtotal	39.5	4.7	40.8	3.4
General Aviation Jet	CIT3	1.4	0.1	1.5	0.1
	CL600	3.2	0.2	3.1	0.3
	CL601	1.2	<0.1	1.0	0.2
	CNA500	2.5	0.1	2.4	0.1
	CNA750	2.0	0.1	2.0	0.1
	FAL20	1.4	0.1	1.3	0.2
	FAL50 ⁽¹⁾	2.8	0.1	2.3	0.5
	FAL900 ⁽¹⁾	1.5	0.1	1.5	0.1
	GII	0.1	0.0	0.1	0.0
	GIIB	0.1	0.0	0.1	0.0
	GIV	1.5	0.2	1.7	0.0
	GV	0.3	0.0	0.3	0.0
	IA1125	1.8	0.1	1.7	0.2
	LEAR25	1.1	0.2	1.1	0.3
	LEAR35	21.5	1.0	19.8	2.7
	MU3001	9.4	0.4	8.8	1.1
	Subtotal	52.0	2.6	48.6	6.0
Prop	BEC58P	15.5	5.5	12.4	8.6
	CNA172	1.5	0.2	1.6	<0.1
	CNA206 ⁽¹⁾	2.8	0.1	2.9	<0.1
	COMSEP	<0.1	0.0	<0.1	0.0
	DC3	<0.1	0.0	<0.1	0.0
	GASEPV	5.0	0.3	5.3	0.1



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Aircraft Category	NIRS Type	Arrivals		Departures	
		Day	Night	Day	Night
	SD330	2.8	0.6	3.3	0.1
	Subtotal	29.1	6.8	26.9	8.9
Turboprop	CNA20T ⁽¹⁾	6.6	3.8	1.7	8.7
	CNA441	3.5	0.2	3.4	0.2
	DHC6	8.6	0.1	6.2	2.6
	DHC830	<0.1	0.0	0.0	<0.1
	GASEPV	0.6	<0.1	0.6	0.0
	SD330	<0.1	0.0	<0.1	0.0
	Subtotal	19.3	4.1	11.9	11.5
Military	T37 ⁽¹⁾	2.6	0.0	2.6	0.0
	Subtotal	2.6	0.0	2.6	0.0
Total		195.2	30.7	188.4	37.4

Notes:

(1) See Notes in Table 3 for various NIRS model type substitutions

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of radar data and FAA TAF (Jan. 2004)



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Table 6 Existing Operations (2003) at LNK

Aircraft Category	NIRS Type	Arrivals		Departures		Touch & Go's ⁽⁶⁾	
		Day	Night	Day	Night	Day	Night
Air Carrier	717200	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737300	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737500	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737700	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	727EM2	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737N17	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
	737N9	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	A32023 ⁽¹⁾	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	DC93LW	0.1	<0.1	<0.1	<0.1	0.0	0.0
	MD83	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	Subtotal	0.2	<0.1	0.2	<0.1	0.2	<0.1
Regional Jet	BAE146	1.6	0.0	1.6	0.0	0.0	0.0
	CL600	2.4	0.3	2.4	0.3	0.0	0.0
	CL601	7.3	0.3	7.0	0.6	0.0	0.0
	Subtotal	11.4	0.6	11.1	0.9	0.0	0.0
General Aviation Jet	CNA500	3.3	0.5	3.3	0.5	0.0	0.0
	GIV	0.6	0.1	0.6	0.1	0.0	0.0
	GV	1.3	0.2	1.3	0.2	0.0	0.0
	LEAR25	1.1	0.2	1.1	0.2	0.0	0.0
	LEAR35	6.1	0.8	6.1	0.8	0.0	0.0
	Subtotal	12.4	1.7	12.4	1.7	0.0	0.0
Prop	BEC58P	8.5	1.2	8.5	1.2	5.4	0.7
	GASEPF	9.6	1.3	9.5	1.3	14.3	2.0
	GASEPV	9.6	1.3	9.5	1.3	14.3	2.0
	Subtotal	27.6	3.8	27.6	3.8	34.1	4.6
Turboprop	CNA441	6.1	0.8	6.1	0.8	0.0	0.0
	DHC6	4.6	0.4	4.6	0.5	0.5	0.1
	DHC8	1.1	0.5	1.1	0.5	0.0	0.0
	SF340	0.2	<0.1	0.2	<0.1	0.0	0.0
	Subtotal	12.0	1.8	11.9	1.9	0.5	0.1



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Aircraft Category	NIRS Type	Arrivals		Departures		Touch & Go's ⁽⁶⁾	
		Day	Night	Day	Night	Day	Night
Military	C135B ⁽²⁾	9.8	1.3	9.8	1.3	7.0	1.0
	E4 ⁽³⁾	0.5	0.1	0.5	0.1	0.3	<0.1
	F16A ⁽⁴⁾	1.2	0.2	1.2	0.2	0.9	0.1
	KC135R	7.5	1.0	7.5	1.0	5.4	0.7
	Subtotal	19.0	2.6	19.0	2.6	13.6	1.9
Helicopter	B206L ⁽⁵⁾	1.8	0.2	1.8	0.2	1.8	0.2
	S70 ⁽⁵⁾	1.8	0.2	1.8	0.2	1.1	0.1
	Subtotal	3.6	0.5	3.6	0.5	2.9	0.4
Total		86.1	11.0	85.7	11.4	51.3	7.0

Notes:

(1) A32023 – NIRS does not model the A32023 for arrivals. The 737500 is used as a substitute for arrival operations. INM Version 6.1 reports similar noise values for these two aircraft on arrival.

(2) C135B – Modeled as the KC135B in NIRS

(3) E4 – Modeled as the 74720B in NIRS (INM 6.1 substitution list- E4 are 747 airframes with CF6 engines)

(4) F16A – Modeled as the A7D in NIRS – the A7D is the only single engine fighter jet in NIRS

(5) Helicopter operations can not be modeled in NIRS. These operations are included only to account for all operations at LNK.

(6) Modeling of touch & go pattern operations is discussed in Section 2.5

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of LNK Part 150 and FAA ATADS



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Table 7 Future Operations (2006) at LNK

Aircraft Category	NIRS Type	Arrivals		Departures		Touch & Go's ⁽²⁾	
		Day	Night	Day	Night	Day	Night
Air Carrier	717200	0.2	<0.1	0.2	<0.1	0.0	0.0
	737300	0.1	<0.1	0.1	<0.1	0.0	0.0
	737500	0.2	<0.1	0.2	<0.1	0.0	0.0
	737700	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	727EM2	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737N17	0.1	<0.1	0.1	<0.1	0.2	<0.1
	737N9	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	A32023 ⁽¹⁾	0.1	<0.1	0.1	<0.1	0.0	0.0
	DC93LW	0.1	<0.1	0.1	<0.1	0.0	0.0
	MD83	0.1	<0.1	0.1	<0.1	0.0	0.0
	Subtotal	0.9	<0.1	0.8	0.1	0.2	<0.1
Regional Jet	BAE146	2.5	0.0	2.5	0.0	0.0	0.0
	CL600	2.8	0.4	2.8	0.4	0.0	0.0
	CL601	4.6	0.2	4.4	0.4	0.0	0.0
	Subtotal	9.8	0.6	9.6	0.8	0.0	0.0
General Aviation Jet	CNA500	3.5	0.5	3.5	0.5	0.0	0.0
	GIV	0.6	0.1	0.6	0.1	0.0	0.0
	GV	1.2	0.2	1.2	0.2	0.0	0.0
	LEAR25	1.1	0.2	1.1	0.2	0.0	0.0
	LEAR35	6.0	0.8	6.0	0.8	0.0	0.0
	Subtotal	12.4	1.7	12.4	1.7	0.0	0.0
Prop	BEC58P	8.5	1.2	8.5	1.2	5.8	0.8
	GASEPF	9.9	1.4	9.9	1.3	15.4	2.1
	GASEPV	9.9	1.4	9.9	1.3	15.4	2.1
	Subtotal	28.3	3.9	28.3	3.9	36.6	5.0
Turboprop	CNA441	7.0	1.0	7.0	1.0	0.0	0.0
	DHC6	6.0	0.6	5.9	0.7	0.5	0.1
	DHC8	1.3	0.6	1.3	0.6	0.0	0.0
	SF340	0.3	<0.1	0.3	<0.1	0.0	0.0
	Subtotal	14.6	2.2	14.5	2.3	0.5	0.1
Military	C135B ⁽¹⁾	7.2	1.0	7.2	1.0	5.3	0.7
	E4 ⁽¹⁾	0.5	0.1	0.5	0.1	0.4	<0.1
	F16A ⁽¹⁾	1.2	0.2	1.2	0.2	0.9	0.1
	KC135R	10.3	1.4	10.3	1.4	7.6	1.0
	Subtotal	19.2	2.6	19.2	2.6	14.0	1.9
Helicopter	B206L ⁽³⁾	1.8	0.3	1.8	0.3	1.9	0.3
	S70 ⁽³⁾	2.1	0.3	2.1	0.3	1.0	0.1
	Subtotal	3.9	0.5	3.9	0.5	3.0	0.4
Total		89.0	11.5	88.7	11.8	54.2	7.4

Notes:

(1) See Notes in Table 6 for various NIRS model type substitutions

(2) Modeling of touch & go pattern operations is discussed in Section 2.5

(3) Helicopter operations can not be modeled in NIRS. These operations are included only to account for all operations at LNK.

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of LNK Part 150 and FAA TAF (Jan. 2004)



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Table 8 Future Operations (2011) at LNK

Aircraft Category	NIRS Type	Arrivals		Departures		Touch & Go's ⁽²⁾	
		Day	Night	Day	Night	Day	Night
Air Carrier	717200	0.2	<0.1	0.2	<0.1	0.0	0.0
	737300	0.2	<0.1	0.2	<0.1	0.0	0.0
	737500	0.2	<0.1	0.2	<0.1	0.0	0.0
	737700	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	727EM2	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	737N17	0.1	<0.1	0.1	<0.1	0.2	<0.1
	737N9	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	A32023 ⁽¹⁾	0.1	<0.1	0.1	<0.1	0.0	0.0
	DC93LW	<0.1	<0.1	<0.1	<0.1	0.0	0.0
	MD83	0.1	<0.1	0.1	<0.1	0.0	0.0
	Subtotal	0.9	<0.1	0.9	0.1	0.2	<0.1
Regional Jet	BAE146	2.8	0.0	2.8	0.0	0.0	0.0
	CL600	3.3	0.4	3.3	0.4	0.0	0.0
	CL601	4.1	0.2	4.0	0.3	0.0	0.0
	Subtotal	10.2	0.6	10.1	0.8	0.0	0.0
General Aviation Jet	CNA500	3.7	0.5	3.7	0.5	0.0	0.0
	GIV	0.6	0.1	0.6	0.1	0.0	0.0
	GV	1.1	0.2	1.1	0.2	0.0	0.0
	LEAR25	0.8	0.1	0.8	0.1	0.0	0.0
	LEAR35	6.1	0.8	6.1	0.8	0.0	0.0
	Subtotal	12.3	1.7	12.3	1.7	0.0	0.0
Prop	BEC58P	8.5	1.2	8.5	1.2	5.8	0.8
	GASEPF	10.0	1.4	10.0	1.4	15.4	2.1
	GASEPV	10.0	1.4	10.0	1.4	15.4	2.1
	Subtotal	28.4	3.9	28.4	3.9	36.7	5.0
Turboprop	CNA441	8.2	1.1	8.2	1.1	0.0	0.0
	DHC6	6.8	0.6	6.6	0.8	0.4	0.1
	DHC8	1.5	0.7	1.5	0.7	0.0	0.0
	SF340	0.2	<0.1	0.2	<0.1	0.0	0.0
	Subtotal	16.6	2.5	16.5	2.6	0.4	0.1
Military	C135B ⁽¹⁾	4.7	0.6	4.7	0.6	3.5	0.5
	E4 ⁽¹⁾	0.5	0.1	0.5	0.1	0.4	<0.1
	F16A ⁽¹⁾	1.2	0.2	1.2	0.2	0.9	0.1
	KC135R	12.7	1.7	12.7	1.7	9.3	1.3
	Subtotal	19.2	2.6	19.2	2.6	14.0	1.9
Helicopter	B206L ⁽³⁾	1.9	0.3	1.9	0.3	1.9	0.3
	S70 ⁽³⁾	2.0	0.3	2.0	0.3	1.0	0.1
	Subtotal	3.9	0.5	3.9	0.5	2.9	0.4
Total		91.6	11.9	91.3	12.2	54.2	7.4

Notes:

(1) See Notes in Table 6 for various NIRS model type substitutions

(2) Modeling of touch & go pattern operations is discussed in Section 2.5

(3) Helicopter operations can not be modeled in NIRS. These operations are included only to account for all operations at LNK.

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of LNK Part 150 and FAA TAF (Jan. 2004)



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Table 9 2003, 2006 and 2011 Operations at OFF

Aircraft Category	NIRS Type	Arrivals		Departures		Touch & Go's ⁽⁷⁾	
		Day	Night	Day	Night	Day	Night
Jet	707320 ⁽¹⁾	0.7	0.0	0.7	0.0	0.2	0.0
	737700	0.1	0.0	0.1	0.0	0.0	0.0
	737N17	0.3	0.0	0.3	0.0	0.0	0.0
	74720B ⁽²⁾	0.6	0.4	0.9	0.1	1.1	0.1
	757PW	0.0	0.0	0.0	0.0	0.1	0.0
	A310	0.1	0.0	0.1	0.0	0.0	0.0
	A7D ⁽³⁾	0.7	0.0	0.7	0.0	1.0	0.0
	CIT3	0.1	0.0	0.1	0.0	0.0	0.0
	CL600	0.1	0.0	0.1	0.0	0.0	0.0
	CL601	0.1	0.0	0.1	0.0	0.0	0.0
	CNA750	0.1	0.0	0.1	0.0	0.0	0.0
	DC1010	0.1	0.0	0.1	0.0	0.0	0.0
	DC870	0.0	0.1	0.1	0.1	0.1	0.0
	DC93LW	0.3	0.0	0.3	0.0	0.0	0.0
	F4C ⁽⁴⁾	1.5	0.0	1.5	0.0	1.1	0.0
	GV	0.1	0.0	0.1	0.0	0.0	0.0
	KC135B	4.8	2.4	6.9	0.2	7.3	0.9
	KC135R	2.9	0.2	2.8	0.2	0.9	0.0
	LEAR25 ⁽⁵⁾	2.1	0.0	2.1	0.0	2.1	0.0
	LEAR35	5.5	0.9	6.2	0.2	1.5	0.0
	MU3001	0.2	0.0	0.2	0.0	0.0	0.0
	Subtotal	20.1	3.9	23.3	0.7	15.3	1.0
Prop	BEC58P	0.3	0.0	0.3	0.0	0.1	0.0
	CNA172	0.2	0.1	0.3	0.0	0.0	0.0
	CNA206 ⁽⁶⁾	0.0	0.0	0.0	0.0	0.0	0.0
	DC3	0.0	0.0	0.0	0.0	0.1	0.0
	GASEPF	0.8	0.0	0.8	0.0	0.0	0.0
	GASEPV	0.3	0.0	0.3	0.0	0.1	0.0
	Subtotal	1.5	0.1	1.6	0.0	0.3	0.0
Turbo-prop	C130	0.5	0.1	0.5	0.0	0.1	0.0
	CNA441	0.1	0.0	0.1	0.0	0.1	0.0
	DHC6	3.1	0.2	3.2	0.1	0.1	0.0
	GASEPV	0.2	0.0	0.2	0.0	0.1	0.0
	HS748A	0.1	0.0	0.1	0.0	0.0	0.0
	L188	0.1	0.1	0.1	0.0	0.0	0.0
	Subtotal	3.9	0.3	4.2	0.1	0.3	0.0
Total		25.5	4.3	29.1	0.8	15.9	1.0

Notes:

In general, military aircraft are represented by the respective civilian airframe. For example, E4s are represented by the 74720B, C21s and C35s are represented by the LEAR35.

(1) 707320 – Represents certain engine installations on Boeing 707 / C135 aircraft

(2) 74720B – Represents the E4

(3) A7D – represents various military single and twin-engine fighter/attack jets (INM substitution list, various versions)

(4) F4C – represents various military twin-engine fighter/attack jets (INM substitution list, various versions)

(5) LEAR25 – represents various corporate jets and military trainers such as the T37 and T38 (INM 6.1 substitution list)

(6) CNA206 – This aircraft is represented by GASEPV in NIRS (INM 6.0a substitution list)

(7) Modeling of touch & go pattern operations is discussed in Section 2.5

Some totals and sub-totals may not match exactly due to rounding.

Source: HMMH analysis of radar data



2.4 Runway Utilization

Runway use refers to the frequency with which aircraft utilize each runway during the course of a year, given in terms of the percent of total operations at an airport. Runway use is affected by many factors including weather, runway length requirements, instrumentation available on each runway, and, if applicable, traffic flow at nearby airports.

OMA and OFF runway use information was determined from the 60 day radar sample. LNK runway use was determined from information presented in the LNK Part 150. The proposed action is not expected to change runway use. Therefore, the runway use is the same for the proposed and no action scenarios. The modeled runway use for this analysis is presented in Table 10 through Table 24.



Table 10 Modeled Runway Use for OMA (Air Carriers) 2003, 2006 and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	0.0%	0.1%	0.9%	0.5%	0.0%	0.0%
14L	18.9%	21.0%	46.6%	45.0%	66.7%	33.3%
18	35.9%	24.9%	6.8%	3.4%	33.3%	33.3%
32R	40.7%	51.0%	6.5%	1.3%	0.0%	0.0%
32L	0.0%	0.0%	0.4%	0.2%	0.0%	0.0%
36	4.5%	3.0%	38.8%	49.6%	0.0%	33.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of radar data

Table 11 Modeled Runway Use for OMA (Regional Jet) 2003, 2006 and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	0.2%	0.7%	1.4%	0.4%	0.0%	0.0%
14L	11.8%	29.7%	45.5%	49.6%	25.0%	0.0%
18	41.3%	27.6%	5.2%	5.8%	0.0%	100.0%
32R	41.4%	31.4%	6.2%	1.3%	50.0%	0.0%
32L	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%
36	5.3%	10.6%	41.3%	42.9%	25.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of radar data

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Table 12 Modeled Runway Use for OMA (General Aviation Jet) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	18.4%	15.7%	6.2%	2.8%	2.5%	0.0%
14L	10.8%	22.5%	0.5%	0.5%	15.0%	0.0%
18	22.0%	22.5%	45.8%	56.7%	30.0%	0.0%
32R	11.7%	7.9%	6.9%	1.9%	42.5%	100.0%
32L	26.2%	22.5%	39.9%	38.1%	2.5%	0.0%
36	10.9%	9.0%	0.6%	0.0%	7.5%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of radar data

Table 13 Modeled Runway Use for OMA (Prop) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	32.9%	23.0%	37.8%	42.2%	22.2%	0.0%
14L	8.1%	1.2%	5.3%	12.5%	11.1%	0.0%
18	14.8%	15.3%	10.9%	2.2%	0.0%	0.0%
32R	8.1%	7.7%	2.9%	1.6%	44.4%	100.0%
32L	29.1%	50.4%	35.4%	28.8%	5.6%	0.0%
36	7.1%	2.4%	7.7%	12.8%	16.7%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of radar data

Table 14 Modeled Runway Use for OMA (Turboprop) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	17.6%	34.1%	19.1%	11.0%	0.0%	0.0%
14L	21.9%	24.5%	15.7%	37.2%	50.0%	0.0%
18	15.5%	2.6%	17.9%	5.1%	25.0%	100.0%
32R	11.1%	9.6%	7.3%	21.9%	25.0%	0.0%
32L	16.5%	21.0%	28.4%	17.9%	0.0%	0.0%
36	17.3%	8.3%	11.6%	6.8%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of radar data



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Table 15 Modeled Runway Use for OMA (Military) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14R	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
14L	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%
18	14.3%	0.0%	42.9%	0.0%	0.0%	0.0%
32R	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%
32L	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%
36	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%

Source: HMMH analysis of radar data

Table 16 Modeled Runway Use for LNK (Air Carrier) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.6%	3.5%	3.5%	3.5%	3.4%
32	1.5%	1.5%	1.5%	1.5%	1.5%	1.6%
17L	1.3%	1.2%	1.3%	1.3%	0.0%	0.0%
17R	65.2%	65.2%	65.2%	65.2%	66.5%	66.5%
35L	27.9%	28.0%	27.9%	28.0%	28.5%	28.5%
35R	0.6%	0.5%	0.6%	0.6%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

Table 17 Modeled Runway Use for LNK (Regional Jet) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.5%	3.5%	3.5%	0.0%	0.0%
32	1.5%	1.5%	1.5%	1.5%	0.0%	0.0%
17L	1.4%	1.4%	1.4%	1.4%	0.0%	0.0%
17R	65.1%	65.1%	65.1%	65.1%	0.0%	0.0%
35L	27.9%	27.9%	27.9%	27.9%	0.0%	0.0%
35R	0.6%	0.6%	0.6%	0.6%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150



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Table 18 Modeled Runway Use for LNK (General Aviation Jet) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.5%	3.5%	3.5%	0.0%	0.0%
32	1.5%	1.5%	1.5%	1.5%	0.0%	0.0%
17L	36.0%	36.0%	36.0%	36.0%	0.0%	0.0%
17R	30.5%	30.5%	30.5%	30.5%	0.0%	0.0%
35L	13.1%	13.1%	13.1%	13.1%	0.0%	0.0%
35R	15.4%	15.4%	15.4%	15.4%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150



Table 19 Modeled Runway Use for LNK (Prop) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
32	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
17L	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%
17R	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%
35L	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
35R	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

Table 20 Modeled Runway Use for LNK (Turboprop) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.5%	3.5%	3.5%	3.5%	3.6%
32	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
17L	22.4%	20.2%	22.5%	19.4%	0.0%	0.0%
17R	44.1%	46.3%	44.0%	47.1%	66.5%	66.5%
35L	18.9%	19.9%	18.8%	20.2%	28.5%	28.4%
35R	9.6%	8.6%	9.7%	8.3%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

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Table 21 Modeled Runway Use for LNK (Military) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
14	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
32	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
17L	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
17R	66.5%	66.5%	66.5%	66.5%	66.5%	66.5%
35L	28.5%	28.5%	28.5%	28.5%	28.5%	28.5%
35R	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

Table 22 Modeled Runway Use for OFF (Jets) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
12	49.3%	45.2%	71.0%	57.1%	66.1%	66.7%
30	50.7%	54.8%	29.0%	42.9%	33.9%	33.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

Table 23 Modeled Runway Use for OFF (Props) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
12	38.9%	0.0%	33.3%	0.0%	50.0%	50.0%
30	61.1%	100.0%	66.7%	100.0%	50.0%	50.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

Table 24 Modeled Runway Use for OFF (Turboprops) 2003, 2006, and 2011

Runway	Arrivals		Departures		Touch & Go's	
	Day	Night	Day	Night	Day	Night
12	52.0%	0.0%	60.5%	100.0%	50.0%	50.0%
30	48.0%	100.0%	39.5%	0.0%	50.0%	50.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: HMMH analysis of LNK Part 150

2.5 Flight Tracks and Flight Track Utilization

The NIRS simulates the operation of an airport by "flying" the aircraft along relatively small numbers of model flight tracks that represent the large number of flight paths actually used by aircraft. Model flight tracks for the OMA and OFF No Action alternative were developed from the

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60-day sample of radar data. Initially, the flight track radar data were organized into three groups: departure tracks, arrival tracks and touch-and-go tracks. Then the radar flight tracks were organized even further according to an associated navigation point or points. The navigation points used in the grouping of radar flight tracks are presented in Figure 1.

The altitudes for the no-action OMA and OFF flight tracks were developed from the radar data. Analysis of the radar data indicated that arrivals at both airports can be represented by a three-degree descent to 3,000 ft above Airfield Elevation (AFE), a level-flight segment at 3,000 ft AFE, and then a three-degree descent to the runway. The length of the level-flight segment was modeled as 90,000 ft. (approximately 15 nautical miles) from OMA arrivals and 140,000 ft. (approximately 23 nautical miles) for OFF arrivals. The radar data analysis indicates seventy percent of arrivals fly at or above this profile, while thirty percent fly at or below this profile.

The radar data also indicated that aircraft departures climb based on aircraft performance and generally do not have a hold-down. Therefore, all departure altitudes were based on the NIRS standard departure profile database.

Touch-and-go, or pattern traffic, cannot be directly modeled in NIRS. NIRS must model at least one point of a flight track above 3,000 ft AFE, and can only model level-flight segments above 3,000 ft AFE. Therefore a combination of departures and arrivals was used to model touch-and-go patterns. One half of the touch-and-go operations presented in Section 2.3 were modeled as departures and the other half were modeled as arrivals. The departures were modeled to approximately 3,100 ft AFE and then maintained level flight until the aircraft reached the start of descent. At the start of descent the aircraft was modeled as an arrival back to the runway. If the pattern was not large enough for the climb and descent to 3,100 ft. AFE, departures would continue to fly the pattern until the aircraft could reach 3,100 ft. Arrivals always start from 3,100 ft. AFE, and descend at three-degrees to the appropriate runway end. If the pattern was too small for such a descent, the aircraft flew runway heading as if on approach, entered the pattern over the runway, flew the pattern once around and then landed. This technique occasionally modeled extra aircraft in a give location, and therefore provides an overestimate of the noise in certain locations. However, since the touch-and-go patterns are not affected by the proposed action, this conservative approach will not adversely affect the results.

Model flight tracks and model flight track use for LNK in this study were developed from the model tracks contained within the LNK Part 150. The model flight tracks from the LNK Part 150 study were extended based on the 60 day radar sample to provide additional coverage through the study area. In some cases, it was necessary to split the LNK Part 150 model tracks to represent two different flight paths that occurred outside of the local LNK airport environment. In such a case, the flight track use was split between the two resulting tracks. One of the residual tracks created as a result of the split retained the original track's name, while the other name of the other residual track was appended with a number. Because the LNK Part 150 has several figures that display and label the various model flight tracks, flight tracks labels are not included in Figure 4 and Figure 7, which depict the extended LNK model tracks used in this analysis. Also note that while touch-and-go tracks from the LNK Part 150 were modeled in this analysis, they are not displayed below. Altitude profiles for LNK departures and touch-and-go pattern traffic is described above. All LNK arrival profiles modeled with NIRS standard profiles; these profiles are very similar to the profiles modeled in the LNK Part 150.

Proposed action arrival flight tracks for OMA and OFF were developed from information provided by the FAA on July 24, 2004. The data are in the form of TARGETS distribution packages and are presented in Appendix A. Each of the five distribution packages describes one of the proposed routes. Each of the routes provides an entry point for arriving aircraft to enter R90's airspace. At the end of the proposed routes, the aircraft will be vectored to the appropriate active runway at OMA or



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OFF. Model flight tracks were created for both the proposed routes and vectored portion of the flights, therefore there is one or more model tracks for each proposed action and runway combination. Multiple flight tracks are used to represent dispersion. Dispersion and vectored portion of flight tracks are based on the TARGETS distribution packages, the analysis of current radar data, discussions with Air Traffic Controllers, and a review of operations at other airports with similar routes. Altitude profiles for the proposed action arrivals were modeled the same as the No-Action arrivals with the exception of the altitudes defined in the TARGETS distribution packages. If the TARGETS distribution package provided a range of altitudes for a point, the lowest altitude was used, thereby causing conservative noise calculations. Altitudes defined in the TARGETS distribution packages for the vectored portion of flight were not used, and the level segments from the no-action alternative were used instead. This is because NIRS can only model three-degree descents below 3,000 ft AGL. The level flight segments from the no-action allowed aircraft to be modeled at the lowest altitude permissible in NIRS. The proposed action does not affect either departures or touch-and-go operations, and therefore those model tracks remain the same in the No-Action and Proposed Action alternatives.

Images of the model flight tracks are shown in Figure 2 through Figure 7. Model flight track usage is presented in Table 25 through Table 34. The model tracks have been sent to NGIT electrically.



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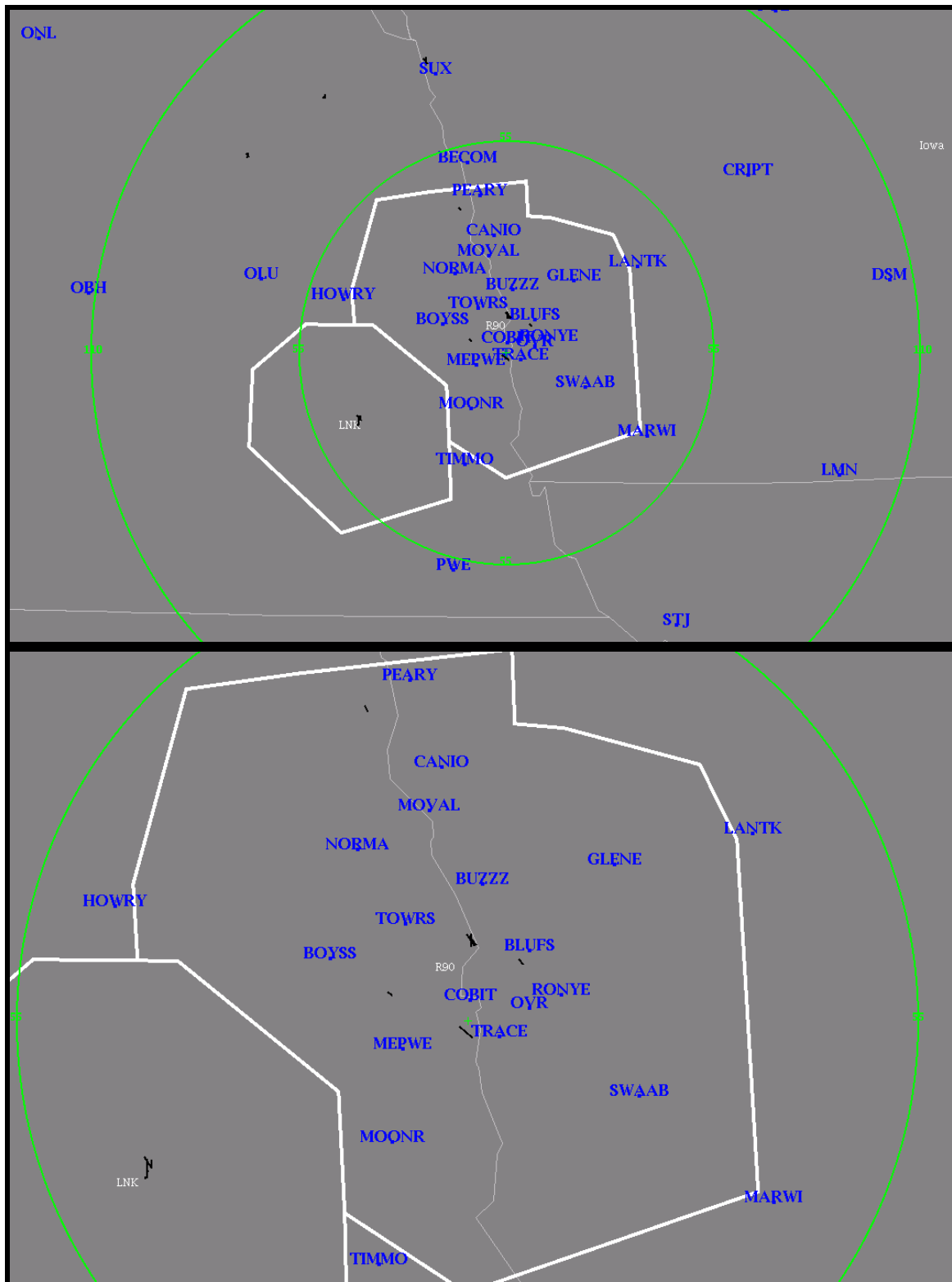


Figure 1 Study Navigation Points (Blue)
White Lines represent LNK and R90 TRACON Boundaries
Green circles are distances from study center (nmi) - inner (55 nmi.) circle is study boundary

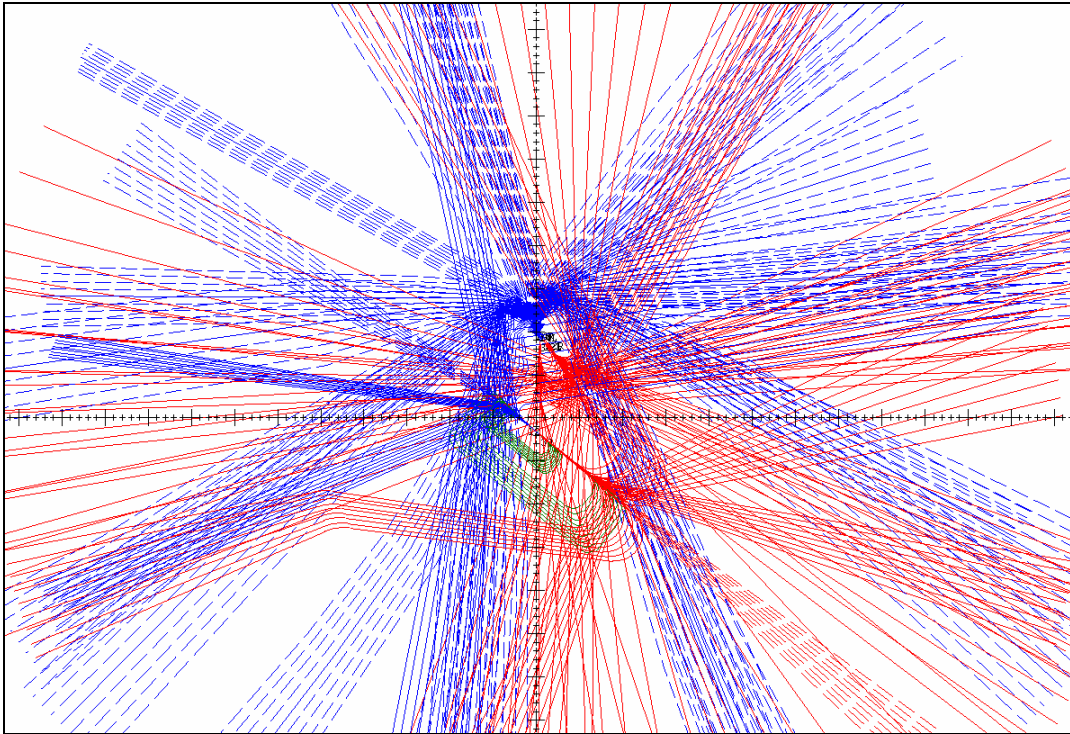


Figure 2 OMA and OFF North Flow No Action Jet Flight Tracks
Blue- Departure, Red- Arrivals, Green- Touch-n-Gos

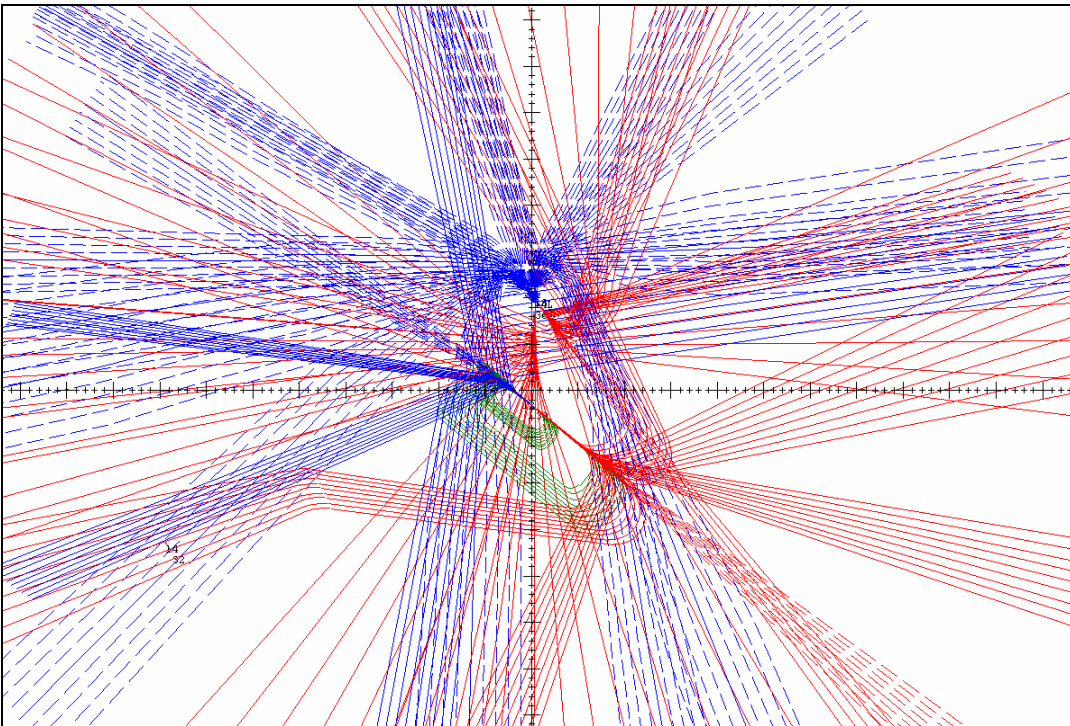


Figure 3 OMA and OFF North Flow Prop/TurboProp No Action Flight Tracks
Blue- Departure, Red- Arrivals, Green- Touch-n-Gos

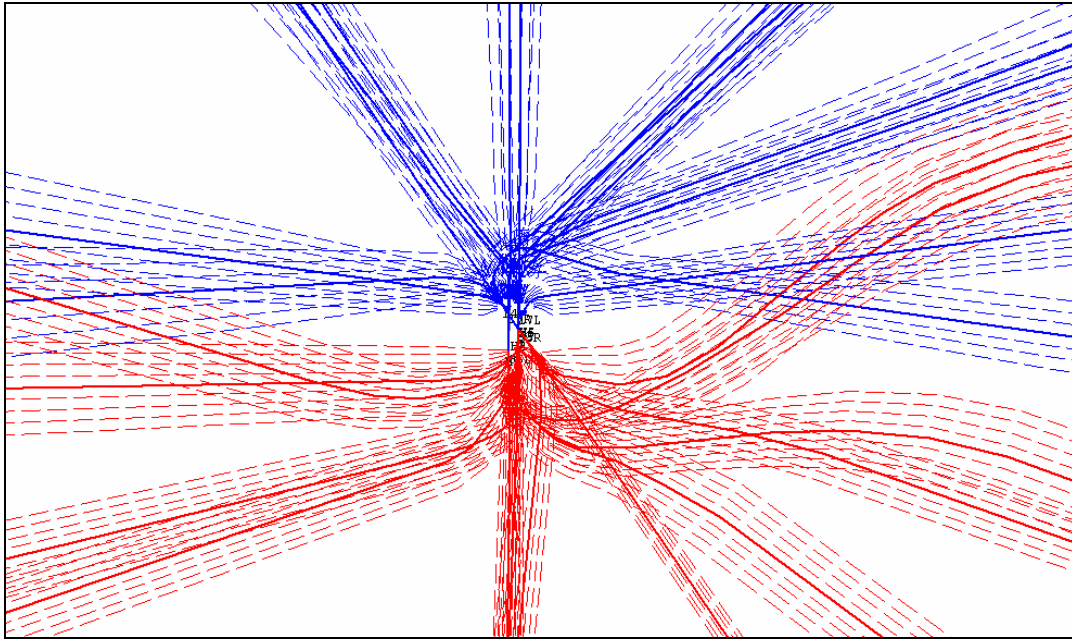


Figure 4 LNK North Flow (Runways 17L, 17R and 14) Flight Tracks
Blue- Departure, Red- Arrivals

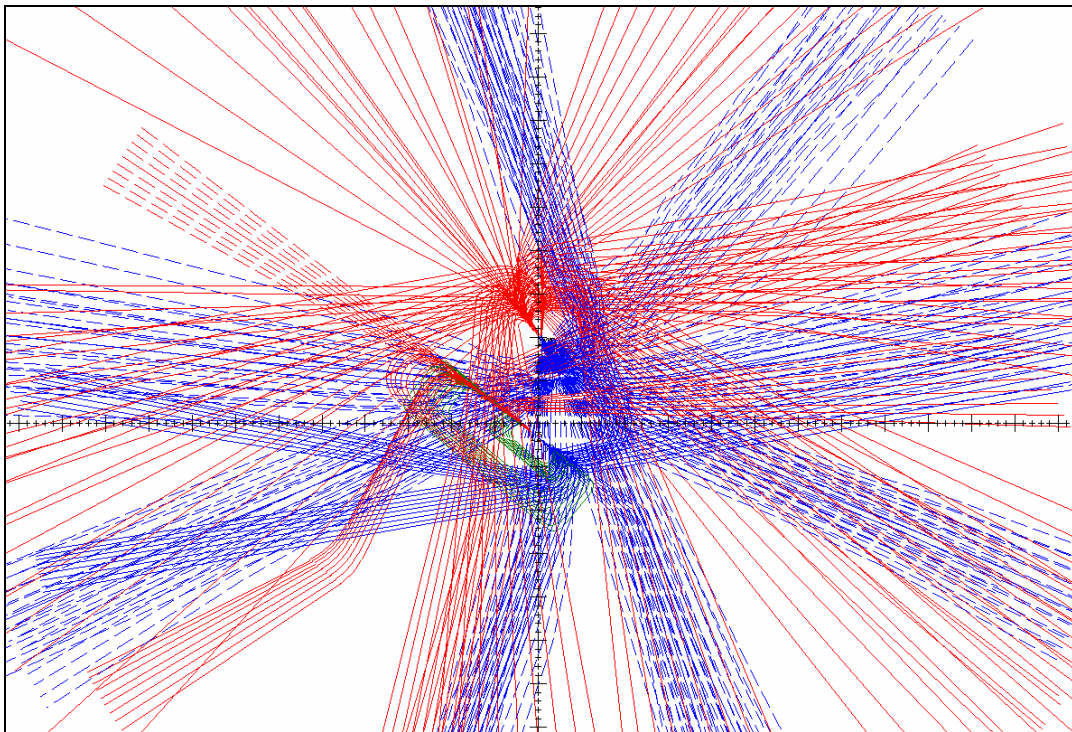


Figure 5 OMA and OFF South Flow No Action Jet Flight Tracks
Blue- Departure, Red- Arrivals

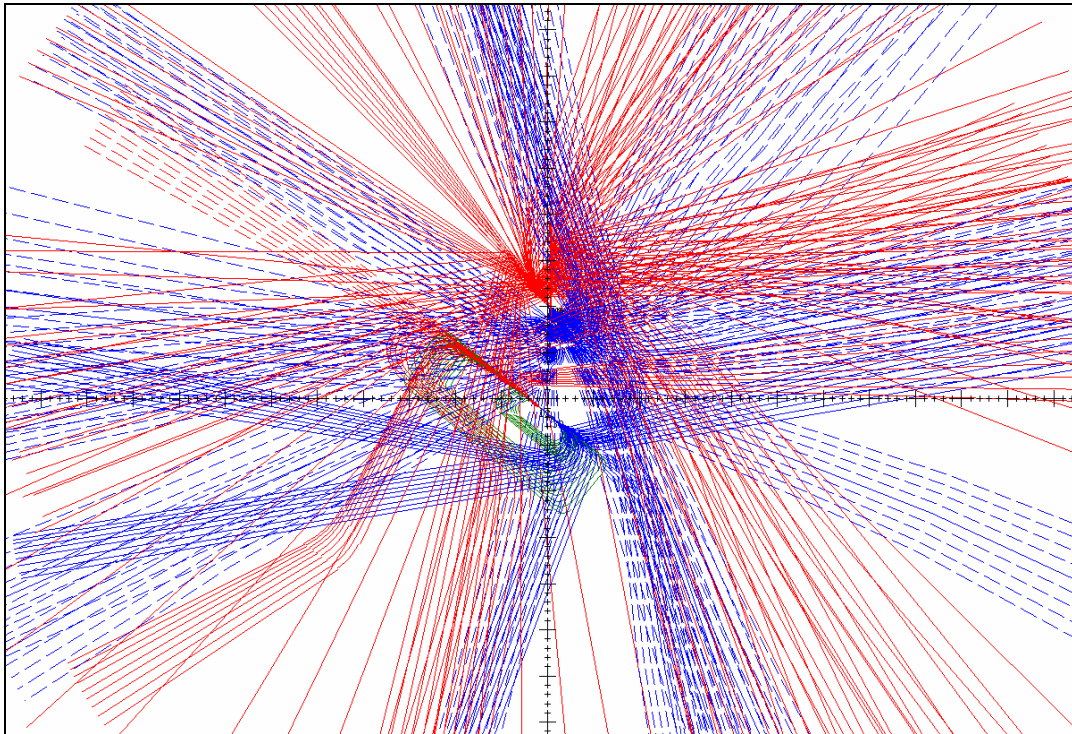


Figure 6 OMA and OFF South Flow Prop/TurboProp No Action Flight Tracks
Blue- Departure, Red- Arrivals, Green- Touch-n- Gos

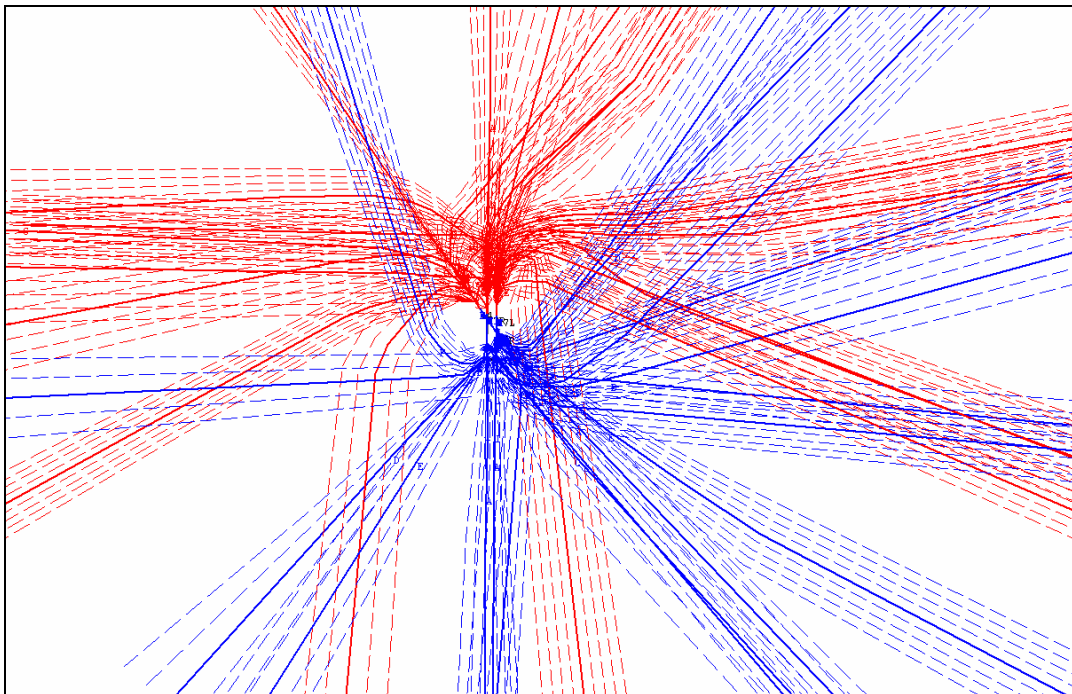


Figure 7 LNK South Flow (Runways 35L, 35R and 32) Flight Tracks
Blue- Departure, Red- Arrivals

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Table 25 Modeled Track Use for OMA No Action and Proposed Action Departure Track

Aircraft Category	Runway	Flight Track	Departures		Navigation Point
			Day	Night	
Air Carrier	14L	14LDJFO	30.8%	0.0%	FOD
		14LDJLN	20.8%	0.0%	LNK
		14LDJOF	13.8%	0.0%	OFK
		14LJDDS	34.6%	100.0%	DSM
	14R	14RDJDS	33.4%	39.8%	DSM
		14RDJFO	22.4%	0.0%	FOD
		14RDJLN	24.1%	0.6%	LNK
		14RDJOF	4.0%	0.7%	OFK
		14RDJPW	6.9%	16.3%	PWE
		14RDJST	3.2%	17.1%	STJ
		14RDJST2	4.5%	19.0%	STJ
		14RDJSU	1.4%	6.5%	SUX
	18	18DJDS1	11.0%	0.0%	DSM
		18DJDS2	11.0%	0.0%	DSM
		18DJFO1	14.1%	0.0%	FOD
		18DJLN1	14.6%	0.0%	LNK
		18DJLN2	17.8%	0.0%	LNK
		18DJPW1	28.2%	100.0%	PWE
	32L	18DJST1	3.3%	0.0%	STJ
		32LDJDS	30.2%	33.3%	DSM
		32LDJFO	18.5%	0.0%	FOD
		32LDJLN	29.3%	0.0%	LNK
		32LDJPW	11.7%	0.0%	PWE
		32LDJST	4.9%	66.7%	STJ
		32LDJST2	4.9%	0.0%	STJ
	32R	32LDPSU	0.5%	0.0%	SUX
		32RDJ6	6.7%	50.0%	PWE
		32RDJDS	18.0%	50.0%	DSM
		32RDJFO	6.7%	0.0%	FOD
		32RDJLN	45.3%	0.0%	LNK
		32RDJLN2	8.0%	0.0%	LNK
	36	32RDJST	4.7%	0.0%	STJ
		32RDJST2	10.7%	0.0%	STJ
		36DJDS1	19.1%	38.7%	DSM
		36DJDS2	19.1%	7.2%	DSM
		36DJFO1	17.1%	6.4%	FOD
		36DJFO2	7.3%	12.7%	FOD
		36DJLN1	18.4%	0.3%	LNK
		36DJLN2	8.7%	1.3%	LNK
Regional Jet	14L	36DJPW1	6.0%	12.8%	PWE
		36DJST1	4.4%	15.3%	STJ
		36DJSU	0.0%	5.3%	SUX
	14R	14LDJFO	23.1%	0.0%	FOD
		14LDJLN	13.8%	0.0%	LNK
		14LDJOF	9.2%	0.0%	OFK
		14LDJST	2.3%	0.0%	STJ
	14R	14LDJST2	9.2%	0.0%	STJ
		14LJDDS	42.3%	0.0%	DSM
		14RDJDS	42.9%	33.1%	DSM
		14RDJFO	20.0%	0.0%	FOD
	14R	14RDJLN	6.7%	6.1%	LNK
		14RDJOF	5.7%	11.5%	OFK



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Aircraft Category	Runway	Flight Track	Departures		Navigation Point
			Day	Night	
		14RDJPW	8.0%	33.8%	PWE
Regional Jet	14R	14RDJST	8.8%	1.2%	STJ
		14RDJST2	7.0%	14.3%	STJ
		14RDJSU	0.8%	0.0%	SUX
	18	18DJDS1	13.0%	10.0%	DSM
		18DJDS2	13.0%	0.0%	DSM
		18DJFO1	10.9%	0.0%	FOD
		18DJLN1	7.3%	10.0%	LNK
		18DJLN2	9.0%	0.0%	LNK
		18DJPW1	40.2%	80.0%	PWE
		18DJST1	6.5%	0.0%	STJ
		32L	32LDJDS	47.4%	0.0%
	32LDJFO		19.3%	0.0%	FOD
	32LDJLN		7.9%	0.0%	LNK
	32LDJPW		10.5%	0.0%	PWE
	32LDJST		7.0%	0.0%	STJ
	32LDJST2		7.0%	0.0%	STJ
	32LDPSU		0.9%	0.0%	SUX
	32LDTPW2		0.0%	100.0%	PWE
	32R	32RDJ6	12.5%	0.0%	PWE
		32RDJDS	33.8%	0.0%	DSM
		32RDJLN	10.6%	0.0%	LNK
		32RDJLN1	22.5%	0.0%	LNK
		32RDJLN2	4.4%	0.0%	LNK
		32RDJST	6.3%	0.0%	STJ
	36	32RDJST2	10.0%	0.0%	STJ
		36DJDS1	24.5%	35.6%	DSM
		36DJDS2	24.5%	5.9%	DSM
		36DJFO1	15.8%	1.4%	FOD
		36DJFO2	6.8%	10.5%	FOD
		36DJLN1	7.1%	0.7%	LNK
		36DJLN2	3.4%	2.7%	LNK
	General Aviation Jet	14L	36DJPW1	5.5%	35.6%
36DJST1			12.5%	7.6%	STJ
14LDJFO			12.2%	40.0%	FOD
14LDJLN			9.7%	0.0%	LNK
14LDJOF			6.5%	0.0%	OFK
14LDJST			3.8%	16.0%	STJ
14LDJST2			15.1%	24.0%	STJ
14R		14LDJSU	6.8%	0.0%	SUX
		14LJDDS	45.9%	20.0%	DSM
		14RDJDS	33.8%	70.0%	DSM
		14RDJFO	12.5%	0.0%	FOD
		14RDJLN	22.5%	0.0%	LNK
		14RDJOF	15.0%	0.0%	OFK
		14RDJPW	12.5%	0.0%	PWE
18		14RDJST2	3.8%	30.0%	STJ
	18DJDS1	14.7%	31.9%	DSM	
	18DJDS2	14.7%	0.0%	DSM	
	18DJFO1	8.5%	0.0%	FOD	
	18DJLN1	18.4%	9.7%	LNK	
	18DJLN2	22.5%	46.8%	LNK	
		18DJPW1	7.3%	7.2%	PWE
		18DJST1	11.2%	0.0%	STJ

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Aircraft Category	Runway	Flight Track	Departures		Navigation Point
			Day	Night	
		18DJSU1	2.8%	4.3%	SUX
General Aviation Jet	32L	32LDJDS	25.3%	50.0%	DSM
		32LDJFO	4.4%	0.0%	FOD
		32LDJLN	36.3%	0.0%	LNK
		32LDJPW	13.2%	0.0%	PWE
		32LDJST	9.9%	50.0%	STJ
		32LDJST2	9.9%	0.0%	STJ
		32LDPSU	1.1%	0.0%	SUX
	32R	32RDJ6	7.1%	1.7%	PWE
		32RDJDS	34.3%	39.0%	DSM
		32RDJFO	8.2%	15.3%	FOD
		32RDJLN	24.4%	21.6%	LNK
		32RDJLN1	2.3%	0.0%	LNK
		32RDJLN2	4.6%	7.2%	LNK
		32RDJST	6.0%	0.0%	STJ
		32RDJST	0.0%	4.1%	STJ
		32RDJST2	8.9%	6.1%	STJ
		32RDJSU	4.4%	5.1%	SUX
	36	36DJDS1	25.0%	0.0%	DSM
		36DJDS2	25.0%	0.0%	DSM
		36DJFO1	8.8%	0.0%	FOD
		36DJFO2	3.8%	0.0%	FOD
		36DJST1	37.5%	0.0%	STJ
Prop	14L	14LDJFO	9.1%	0.0%	FOD
		14LDJST	5.6%	0.0%	STJ
		14LDJST2	13.2%	18.8%	STJ
		14LDPDS2	46.5%	49.4%	DSM
		14LDPFO2	9.1%	27.1%	FOD
		14LDTSU	16.5%	4.7%	SUX
	14R	14RDJDS	0.0%	8.3%	DSM
		14RDJFO	10.3%	0.0%	FOD
		14RDJST	34.5%	12.5%	STJ
		14RDJSU	48.3%	0.0%	SUX
		14RDPSU2	6.9%	79.2%	SUX
	18	18DJDS1	11.7%	0.0%	DSM
		18DJLN1	0.0%	66.7%	LNK
		18DJLN2	45.0%	0.0%	LNK
		18DJPW1	18.3%	33.3%	PWE
		18DJST1	11.7%	0.0%	STJ
		18DPOF	10.0%	0.0%	OFK
		18DPSU	3.3%	0.0%	SUX
	32L	32LDJDS	23.1%	25.0%	DSM
		32LDJOF	15.4%	0.0%	OFK
		32LDJST	15.4%	0.0%	STJ
		32LDPSU	30.8%	0.0%	SUX
		32LDPSU2	0.0%	75.0%	SUX
	32R	32LDTLN	15.4%	0.0%	LNK
		32RDJDS	31.9%	41.8%	DSM
		32RDJLN	11.4%	0.0%	LNK
		32RDJLN1	4.3%	3.6%	LNK
		32RDJLN2	0.0%	3.6%	LNK
		32RDJST2	13.0%	16.4%	STJ
		32RDJSU	19.5%	3.6%	SUX
		32RDLN2	7.6%	0.0%	LNK

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Aircraft Category	Runway	Flight Track	Departures		Navigation Point
			Day	Night	
	36	32RDPFO	12.4%	30.9%	FOD
		36DJDS1	11.1%	12.5%	DSM
		36DJFO1	15.6%	0.0%	FOD
		36DJSU	35.6%	0.0%	SUX
		36DPSU	4.4%	62.5%	SUX
	36	36DTST	33.3%	25.0%	STJ
Turboprop	14L	14LDJLN	22.1%	0.0%	LNK
		14LDJST2	16.8%	0.0%	STJ
		14LDPDS2	17.4%	40.4%	DSM
		14LDPFO2	15.8%	0.0%	FOD
		14LDTLN2	0.0%	29.8%	LNK
		14LDTSU	10.5%	29.8%	SUX
		14LJDDS	17.4%	0.0%	DSM
	14R	14RDJOF	0.0%	100.0%	OFK
		14RDTLN3	28.8%	0.0%	LNK
		14RDTST	71.2%	0.0%	STJ
	18	18DJDS1	21.0%	0.0%	DSM
		18DJLN1	0.0%	22.9%	LNK
		18DJLN2	56.8%	68.8%	LNK
		18DJPW1	12.3%	4.2%	PWE
		18DJST1	3.1%	0.0%	STJ
		18DJST2	3.1%	0.0%	STJ
		18DJSU1	3.7%	4.2%	SUX
	32L	32LDJFO	6.1%	0.0%	FOD
		32LDJOF	22.1%	68.0%	OFK
		32LDPSU2	21.8%	0.0%	SUX
		32LDTLN	50.0%	32.0%	LNK
	32R	32RDJ6	2.3%	0.0%	PWE
		32RDJDS	23.1%	22.4%	DSM
		32RDJLN	21.9%	0.0%	LNK
		32RDJLN1	8.5%	0.0%	LNK
		32RDJLN2	21.9%	50.6%	LNK
		32RDJST2	14.6%	0.0%	STJ
		32RDJSU	7.7%	27.1%	SUX
	36	36DJDS1	1.8%	0.0%	DSM
		36DJLN1	7.1%	22.6%	LNK
		36DJSU	3.6%	9.7%	SUX
		36DTLN2	5.4%	67.7%	LNK
		36DTST	82.1%	0.0%	STJ
Military	18	18DJFO1	50.0%	0.0%	FOD
		18DJPW1	50.0%	0.0%	PWE
	32R	32RDJ6	33.3%	0.0%	PWE
		32RDJDS	60.0%	0.0%	DSM
		32RDJST	6.7%	0.0%	STJ

Source: HMMH analysis of radar data

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Table 26 Modeled Track Use for OMA No Action Arrival Tracks

Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Air Carrier	14L	14AJ3	0.0%	100.0%	SUX
	14R	14AJ1R	22.4%	22.8%	PWE
		14AJ2R	60.0%	62.2%	LNK
		14AJ3R	6.0%	5.1%	DSM
		14AJ4R	8.0%	8.3%	STJ/DSM
		14AJ5R	3.5%	1.6%	SUX/OFK
	18	18AJ1	32.1%	27.7%	DSM
		18AJ2	20.9%	16.4%	FOD
		18AJ3	35.5%	39.4%	STJ/DSM
		18AJ4	8.2%	4.8%	LNK
		18AJ5A	3.4%	11.6%	STJ
	32L	32AJ1L	12.7%	6.1%	FOD
		32AJ2L	50.4%	43.9%	DSM
		32AJ3L	6.3%	23.1%	STJ
		32AJ4L	9.2%	8.7%	PWE
		32AJ5L	21.4%	18.3%	LNK
	32R	32AJ1	50.0%	0.0%	DSM
		32AJ3	50.0%	0.0%	STJ/DSM
	36	36AJ1	54.9%	75.0%	LNK
		36AJ2	12.3%	25.0%	PWE
		36AJ3	11.1%	0.0%	DSM
		36AJ4	7.4%	0.0%	FOD
		36AJ5	14.3%	0.0%	STJ/DSM
Regional Jet	14L	14AJ2	33.3%	0.0%	LNK/OFK
		14AJ4A	0.0%	50.0%	DSM
		14AJ5	0.0%	50.0%	STJ
		14AJ6	66.7%	0.0%	FOD
	14R	14AJ1R	37.1%	28.6%	PWE
		14AJ2R	7.1%	16.1%	LNK
		14AJ3R	10.0%	2.7%	DSM
		14AJ4R	16.5%	2.7%	STJ/DSM
		14AJ5R	29.4%	50.0%	SUX/OFK
	18	18AJ1	35.4%	46.7%	DSM
		18AJ2	12.0%	0.0%	FOD
		18AJ3	43.4%	50.0%	STJ/DSM
		18AJ4	1.2%	0.0%	LNK
		18AJ5A	8.0%	3.3%	STJ
	32L	32AJ1L	13.2%	4.1%	FOD
		32AJ2L	60.2%	67.3%	DSM
		32AJ3L	13.2%	0.0%	STJ
		32AJ4L	9.8%	22.4%	PWE
		32AJ5L	3.6%	6.1%	LNK
	32R	32AJ1	25.0%	0.0%	DSM
		32AJ3	25.0%	0.0%	STJ/DSM
		32AJ4	50.0%	0.0%	PWE
	36	36AJ1	12.5%	14.3%	LNK
		36AJ2	20.3%	85.7%	PWE
		36AJ3	21.1%	0.0%	DSM
		36AJ4	10.9%	0.0%	FOD
		36AJ5	35.2%	0.0%	STJ/DSM



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Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
General Aviation Jet	14L	14AJ1	13.3%	0.0%	PWE
		14AJ2	40.7%	50.0%	LNK/OFK
		14AJ3	4.0%	16.7%	SUX
	14L	14AJ4A	12.4%	12.5%	DSM
		14AJ5	20.4%	20.8%	STJ/DSM
		14AJ6	9.3%	0.0%	FOD
	14R	14AJ1R	22.4%	22.2%	PWE
		14AJ2R	38.1%	27.8%	LNK
		14AJ3R	4.1%	11.1%	DSM
		14AJ4R	8.6%	11.1%	STJ/DSM
		14AJ5R	26.9%	27.8%	SUX/OFK
	18	18AJ1	31.3%	33.3%	DSM
		18AJ2	10.2%	0.0%	FOD
		18AJ3	39.4%	46.7%	STJ/DSM
		18AJ4	11.1%	6.7%	LNK
		18AJ5A	8.1%	13.3%	STJ
	32L	32AJ1L	7.9%	28.6%	FOD
		32AJ2L	51.4%	14.3%	DSM
		32AJ3L	10.0%	14.3%	STJ
		32AJ4L	12.1%	28.6%	PWE
		32AJ5L	18.6%	14.3%	LNK
	32R	32AJ1	26.9%	73.3%	DSM
		32AJ2	21.8%	13.3%	LNK/OFK
		32AJ3	39.5%	0.0%	STJ/DSM
		32AJ4	6.5%	6.7%	PWE
		32AJ5	5.4%	6.7%	SUX
	36	36AJ1	54.5%	100.0%	LNK
		36AJ2	19.6%	0.0%	PWE
		36AJ3	8.0%	0.0%	DSM
		36AJ4	1.8%	0.0%	FOD
		36AJ5	16.1%	0.0%	STJ/DSM
Prop	14L	14AP1	30.4%	33.3%	DSM
		14AP2	14.7%	6.1%	SUX
		14AP3	15.8%	6.1%	LNK
		14AP4	15.8%	42.4%	FOD
		14AP5	23.4%	12.1%	STJ
	14R	14RAP1	49.1%	0.0%	OFK
		14RAP2	10.9%	0.0%	LNK
		14RAP3	0.0%	33.3%	STJ
		14RAP4	18.2%	0.0%	SUX
		14RAP5	21.8%	66.7%	DSM/FOD
	18	18AJ2	20.5%	37.0%	FOD
		18AP1	39.7%	48.1%	DSM
		18AP2	39.7%	14.8%	STJ
	32L	32LAP1	23.9%	84.6%	STJ
		32LAP2	21.7%	0.0%	DSM
		32LAP3	54.3%	15.4%	SUX/FOD
	32R	32AP1	21.3%	42.3%	STJ
		32AP2	42.0%	25.4%	DSM
		32AP3	36.7%	32.4%	SUX/FOD
	36	36AJ2	34.2%	80.0%	PWE
		36AP1	65.8%	20.0%	OFK

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Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Turboprop		14AJ1	21.1%	0.0%	PWE
		14AJ3	11.4%	0.0%	SUX
		14AJ4A	24.6%	0.0%	DSM
		14AJ6	7.9%	45.5%	FOD
	14L	14AP3	35.1%	54.5%	LNK
	14R	14AJ2R	97.3%	100.0%	LNK
		14ATR1	2.7%	0.0%	PWE
	18	18AT1	14.7%	60.0%	FOD
		18AT2	32.1%	40.0%	DSM
		18AT3	53.2%	0.0%	STJ
	32L	32AJ3L	63.2%	0.0%	STJ
		32AT1	13.2%	0.0%	LNK
		32LAP2	18.4%	0.0%	DSM
		32LAP3	5.3%	0.0%	SUX/FOD
	32R	32AJ2	31.9%	33.3%	LNK/OFK
		32AJT1	40.5%	13.3%	DSM
		32AJT2	15.5%	53.3%	FOD
		32AP1	12.1%	0.0%	STJ
	36	36AT1	96.1%	90.0%	LNK
		36AT2	3.9%	10.0%	PWE
Military	14R	14AJ1R	100.0%	0.0%	PWE
	18	18AJ1	50.0%	0.0%	DSM
		18AJ3	50.0%	0.0%	STJ/DSM
	32L	32AJ2L	50.0%	0.0%	DSM
		32AJ4L	50.0%	0.0%	PWE

Source: HMMH analysis of radar data

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Table 27 Modeled Track Use for OMA Proposed Action Arrival Tracks

Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Air Carrier	14L	14LSUX	0.0%	100.0%	PEARY
	14R	14RPWE	22.4%	22.8%	TIMMO
		14ROBH1	30.0%	31.1%	HOWRY
		14ROBH2	30.0%	31.1%	HOWRY
		14RDSM1	3.0%	2.6%	LANTK
		14RDSM2	3.0%	2.6%	LANTK
		14RSTJ	8.0%	8.3%	MARWI
		14RSUX	3.5%	1.6%	PEARY
	18	18_DSM	32.1%	27.7%	LANTK
		18_FOD	20.9%	16.4%	LANTK
		18_OBH	8.2%	4.8%	HOWRY
		18_PWE	1.4%	4.7%	TIMMO
		18_STJ	37.5%	46.4%	MARWI
	32L	32LFOD1	6.4%	3.0%	LANTK
		32LFOD2	6.4%	3.0%	LANTK
		32LDSM1	25.2%	22.0%	LANTK
		32LDSM2	25.2%	22.0%	LANTK
		32LSTJ	6.3%	23.1%	MARWI
		32LPWE	9.2%	8.7%	TIMMO
		32LOBH1	10.7%	9.1%	HOWRY
		32LOBH2	10.7%	9.1%	HOWRY
	32R	32RDSM1	25.0%	0.0%	LANTK
		32RDSM2	25.0%	0.0%	LANTK
		32RSTJ	50.0%	0.0%	MARWI
	36	36_OBH	54.9%	75.0%	HOWRY
		36_PWE	12.3%	25.0%	TIMMO
		36_DSM	11.1%	0.0%	LANTK
		36_FOD	7.4%	0.0%	LANTK
		36_STJ	14.3%	0.0%	MARWI
Regional Jet	14L	14LDSM1	0.0%	25.0%	LANTK
		14LDSM2	0.0%	25.0%	LANTK
		14LSTJ	0.0%	50.0%	MARWI
		14LFOD1	33.3%	0.0%	LANTK
		14LFOD2	33.3%	0.0%	LANTK
		14LOBH1	16.7%	0.0%	HOWRY
		14LOBH2	16.7%	0.0%	HOWRY
	14R	14RPWE	37.1%	28.6%	TIMMO
		14ROBH1	3.5%	8.0%	HOWRY
		14ROBH2	3.5%	8.0%	HOWRY
		14RDSM1	5.0%	1.3%	LANTK
		14RDSM2	5.0%	1.3%	LANTK
		14RSTJ	16.5%	2.7%	MARWI
		14RSUX	29.4%	50.0%	PEARY
	18	18_DSM	35.4%	46.7%	LANTK
		18_FOD	12.0%	0.0%	LANTK
		18_OBH	1.2%	0.0%	HOWRY
		18_PWE	1.6%	0.7%	TIMMO
		18_STJ	49.8%	52.6%	MARWI
	32L	32LFOD1	6.6%	2.0%	LANTK
		32LFOD2	6.6%	2.0%	LANTK
		32LDSM1	30.1%	33.7%	LANTK
		32LDSM2	30.1%	33.7%	LANTK
		32LSTJ	13.2%	0.0%	MARWI



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Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Regional Jet	32L	32LPWE	9.8%	22.4%	TIMMO
		32LOBH1	1.8%	3.1%	HOWRY
		32LOBH2	1.8%	3.1%	HOWRY
	32R	32RDSM1	12.5%	0.0%	LANTK
		32RDSM2	12.5%	0.0%	LANTK
		32RSTJ	25.0%	0.0%	MARWI
		32RPWE	50.0%	0.0%	TIMMO
		36_OBH	12.5%	14.3%	HOWRY
	36	36_PWE	20.3%	85.7%	TIMMO
		36_DSM	21.1%	0.0%	LANTK
		36_FOD	10.9%	0.0%	LANTK
		36_STJ	35.2%	0.0%	MARWI
General Aviation Jet	14L	14LPWE	13.3%	0.0%	TIMMO
		14LOBH1	20.4%	25.0%	HOWRY
		14LOBH2	20.4%	25.0%	HOWRY
		14LSUX	4.0%	16.7%	PEARY
		14LDSM1	6.2%	6.3%	LANTK
		14LDSM2	6.2%	6.3%	LANTK
		14LSTJ	20.4%	20.8%	MARWI
		14LFOD1	4.6%	0.0%	LANTK
	14R	14LFOD2	4.6%	0.0%	LANTK
		14RPWE	22.4%	22.2%	TIMMO
		14ROBH1	19.0%	13.9%	HOWRY
		14ROBH2	19.0%	13.9%	HOWRY
		14RDSM1	2.1%	5.6%	LANTK
		14RDSM2	2.1%	5.6%	LANTK
		14RSTJ	8.6%	11.1%	MARWI
		14RSUX	26.9%	27.8%	PEARY
	18	18_DSM	31.3%	33.3%	LANTK
		18_FOD	10.2%	0.0%	LANTK
		18_OBH	11.1%	6.7%	HOWRY
		18_PWE	1.6%	2.7%	TIMMO
		18_STJ	45.8%	57.3%	MARWI
	32L	32LFOD1	3.9%	14.3%	LANTK
		32LFOD2	3.9%	14.3%	LANTK
		32LDSM1	25.7%	7.1%	LANTK
		32LDSM2	25.7%	7.1%	LANTK
		32LSTJ	10.0%	14.3%	MARWI
		32LPWE	12.1%	28.6%	TIMMO
		32LOBH1	9.3%	7.1%	HOWRY
		32LOBH2	9.3%	7.1%	HOWRY
	32R	32RDSM1	13.4%	36.7%	LANTK
		32RDSM2	13.4%	36.7%	LANTK
		32ROBH1	7.6%	4.7%	HOWRY
		32ROBH2	7.6%	4.7%	HOWRY
		32RONL1	3.3%	2.0%	HOWRY
		32RONL2	3.3%	2.0%	HOWRY
		32RSTJ	39.5%	0.0%	MARWI
		32RPWE	6.5%	6.7%	TIMMO
		32RSUX	5.4%	6.7%	PEARY
	36	36_OBH	54.5%	100.0%	HOWRY
		36_PWE	19.6%	0.0%	TIMMO
		36_DSM	8.0%	0.0%	LANTK
		36_FOD	1.8%	0.0%	LANTK
		36_STJ	16.1%	0.0%	MARWI

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Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Prop	14L	14LDSM1	2.5%	0.8%	LANTK
		14LDSM2	2.5%	0.8%	LANTK
		14LSUX	2.5%	0.3%	PEARY
		14LOBH1	1.3%	0.1%	HOWRY
		14LOBH2	1.3%	0.1%	HOWRY
		14LFOD1	1.3%	1.0%	LANTK
		14LFOD2	1.3%	1.0%	LANTK
		14LSTJ	3.9%	0.6%	MARWI
		14AP1	25.3%	31.7%	DSM
		14AP2	12.2%	5.8%	SUX
		14AP3	13.1%	5.8%	OBH
		14AP4	13.1%	40.4%	FOD
		14AP5	19.5%	11.5%	STJ
	14R	14RONL1	4.1%	0.0%	HOWRY
		14RONL2	4.1%	0.0%	HOWRY
		14ROBH1	0.9%	0.0%	HOWRY
		14ROBH2	0.9%	0.0%	HOWRY
		14RSTJ	0.0%	1.6%	MARWI
		14RSUX	3.0%	0.0%	PEARY
		14RDSM1	1.5%	1.3%	LANTK
		14RDSM2	1.5%	1.3%	LANTK
		14RFOD1	0.4%	0.3%	LANTK
		14RFOD2	0.4%	0.3%	LANTK
		14RAP1	40.9%	0.0%	ONL
		14RAP2	9.1%	0.0%	OBH
		14RAP3	0.0%	31.7%	STJ
		14RAP4	15.1%	0.0%	SUX
		14RAP5	18.2%	63.5%	FOD/DSM
	18	18_FOD	3.4%	1.8%	LANTK
		18_DSM	6.7%	2.3%	LANTK
		18_STJ	6.7%	0.7%	MARWI
		18AJ2	17.1%	35.3%	FOD
		18AP1	33.1%	45.9%	DSM
		18AP2	33.1%	14.1%	STJ
	32L	32LSTJ	4.0%	4.0%	MARWI
		32LDSM1	1.8%	0.0%	LANTK
		32LDSM2	1.8%	0.0%	LANTK
		32LFOD1	3.9%	0.3%	LANTK
		32LFOD2	3.9%	0.3%	LANTK
		32LSUX	1.4%	0.1%	PEARY
		32LAP1	19.9%	80.6%	STJ
		32LAP2	18.1%	0.0%	DSM
		32LAP3	45.2%	14.7%	FOD/SUX
	32R	32RSTJ	3.6%	2.0%	MARWI
		32RDSM1	3.5%	0.6%	LANTK
		32RDSM2	3.5%	0.6%	LANTK
		32RSUX	6.1%	1.5%	PEARY
		32AP1	17.7%	40.2%	STJ
		32AP2	35.0%	24.1%	DSM
		32AP3	30.5%	30.9%	SUX
	36	36_PWE	5.7%	3.8%	TIMMO
		36_ONL	11.0%	1.0%	HOWRY
		36AJ2	28.5%	76.2%	PWE
		36AP1	54.8%	19.0%	ONL

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Aircraft Category	Runway	Flight Track	Arrivals		NAVIGATION POINT
			Day	Night	
Turboprop	14L	14LPWE	21.1%	0.0%	TIMMO
		14LSUX	11.4%	0.0%	PEARY
		14LDSM1	12.3%	0.0%	LANTK
		14LDSM2	12.3%	0.0%	LANTK
		14LFOD1	3.9%	22.7%	LANTK
		14LFOD2	3.9%	22.7%	LANTK
		14LOBH1	17.5%	27.3%	HOWRY
		14LOBH2	17.5%	27.3%	HOWRY
	14R	14ROBH1	48.7%	50.0%	HOWRY
		14ROBH2	48.7%	50.0%	HOWRY
		14RPWE	2.7%	0.0%	TIMMO
	18	18_FOD	14.7%	60.0%	LANTK
		18_DSM	32.1%	40.0%	LANTK
		18_STJ	53.2%	0.0%	MARWI
	32L	32LSTJ	63.2%	0.0%	MARWI
		32LOBH1	6.6%	0.0%	HOWRY
		32LOBH2	6.6%	0.0%	HOWRY
		32LDSM1	9.2%	0.0%	LANTK
		32LDSM2	9.2%	0.0%	LANTK
		32LFOD1	2.2%	0.0%	LANTK
		32LFOD2	2.2%	0.0%	LANTK
		32LSUX	0.8%	0.0%	PEARY
Turboprop	32R	32ROBH1	14.4%	15.0%	HOWRY
		32ROBH2	14.4%	15.0%	HOWRY
		32RONL1	1.6%	1.7%	HOWRY
		32RONL2	1.6%	1.7%	HOWRY
		32RDSM1	20.3%	6.7%	LANTK
		32RDSM2	20.3%	6.7%	LANTK
		32RFOD1	7.8%	26.7%	LANTK
		32RFOD2	7.8%	26.7%	LANTK
		32RSTJ	12.1%	0.0%	MARWI
	36	36_OBH	96.1%	90.0%	HOWRY
		36_PWE	3.9%	10.0%	TIMMO
Military	14R	14RPWE	100.0%	0.0%	TIMMO
	18	18_DSM	50.0%	0.0%	LANTK
		18_STJ	50.0%	0.0%	MARWI
	32L	32LDSM1	25.0%	0.0%	LANTK
		32LDSM2	25.0%	0.0%	LANTK
	32L	32LPWE	50.0%	0.0%	TIMMO

Source: HMMH analysis of radar data and FAA

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Table 28 Modeled Track Use for LNK No Action and Proposed Departures

Aircraft Category	Runway	Flight Track	Departures	
			Day	Night
Air Carrier	14	A	39.3%	39.4%
		B	25.3%	25.2%
		C	26.0%	26.4%
		D	9.4%	8.9%
	32	A	40.1%	39.0%
		B	20.0%	20.3%
		C	20.0%	20.3%
		D	20.0%	20.3%
	17L	A	20.0%	21.1%
		B	25.0%	24.3%
		C	25.0%	24.3%
		D	30.0%	30.2%
	17R	A	22.7%	24.0%
		B	17.5%	16.9%
		B1	5.8%	5.6%
		C	15.3%	15.5%
		D	24.7%	24.5%
		E	14.0%	13.5%
	35L	A	58.6%	58.0%
		B	9.3%	9.5%
		B1	11.4%	11.6%
		C	20.7%	21.0%
	35R	A	49.8%	49.2%
		B	20.0%	20.9%
		C	20.0%	20.9%
		D	10.2%	9.1%
Regional Jet	14	A	40.0%	39.9%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	10.0%	10.1%
	32	A	40.0%	40.3%
		B	20.0%	19.9%
		C	20.0%	19.9%
		D	20.0%	19.9%
	17L	A	20.0%	19.8%
		B	25.0%	25.2%
		C	25.0%	25.2%
		D	30.0%	29.8%
	17R	A	20.0%	20.0%
		B	18.7%	18.8%
		B1	6.2%	6.3%
		C	15.0%	15.0%
		D	25.0%	25.0%
		E	15.0%	15.0%
	35L	A	60.0%	60.0%
		B	9.0%	9.0%
		B1	11.0%	11.0%
		C	20.0%	20.0%
	35R	A	50.0%	50.2%
		B	20.0%	20.1%
		C	20.0%	20.1%
		D	9.9%	9.6%



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Aircraft Category	Runway	Flight Track	Departures	
			Day	Night
General Aviation Jet	14	A	40.0%	40.0%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	10.0%	9.9%
	32	A	39.9%	40.0%
		B	20.0%	20.0%
		C	20.0%	20.0%
		D	20.0%	20.0%
	17L	A	20.0%	20.0%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	30.0%	30.0%
	17R	A	20.0%	20.0%
		B	18.8%	18.8%
		B1	6.3%	6.3%
		C	15.0%	15.0%
		D	25.0%	25.0%
		E	15.0%	15.0%
	35L	A	60.0%	60.0%
		B	9.0%	9.0%
		B1	11.0%	11.0%
		C	20.0%	20.0%
	35R	A	40.1%	40.1%
		B	20.0%	20.0%
		C	20.0%	20.0%
		D	19.9%	19.9%
Prop	14	A	20.0%	20.0%
		B	20.0%	20.0%
		C	20.0%	20.0%
		D	20.0%	20.0%
		E	20.0%	20.0%
	32	A	25.0%	25.0%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	25.0%	25.0%
	17L	A	20.0%	20.0%
		D	20.0%	20.0%
		E	30.0%	30.0%
		F	30.0%	30.0%
	17R	A	10.0%	10.0%
		B	15.0%	15.0%
		B1	5.0%	5.0%
		C	20.0%	20.0%
		D	15.0%	15.0%
		E	15.0%	15.0%
		F	20.0%	20.0%
	35L	A	25.0%	25.0%
		B	11.3%	11.3%
		B1	13.8%	13.8%
		C	25.0%	25.0%
		D	25.0%	25.0%
	35R	A	20.0%	20.0%
		B	15.0%	15.0%
		C	15.0%	15.0%
		D	50.0%	50.0%

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Aircraft Category	Runway	Flight Track	Departures	
			Day	Night
Turboprop	14	A	40.0%	40.0%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	10.0%	10.0%
	32	A	40.0%	39.5%
		B	20.0%	20.2%
		C	20.0%	20.2%
		D	20.0%	20.2%
	17L	A	20.0%	20.0%
		B	25.0%	25.0%
		C	25.0%	25.0%
		D	30.0%	30.0%
	17R	A	20.0%	20.0%
		B	18.8%	18.8%
		B1	6.3%	6.3%
		C	15.0%	15.0%
		D	25.0%	25.0%
		E	15.0%	15.0%
	35L	A	60.0%	60.0%
		B	9.0%	9.0%
		B1	11.0%	11.0%
		C	20.0%	20.0%
	35R	A	40.3%	40.5%
		B	20.0%	20.0%
		C	20.0%	20.0%
		D	19.7%	19.6%
Military	14	A	30.0%	29.9%
		B	30.0%	29.9%
		C	40.0%	40.1%
	32	A	40.0%	39.7%
		B	20.0%	20.1%
		C	20.0%	20.1%
		D	20.0%	20.1%
	17R	A	60.0%	60.0%
		C	20.0%	20.0%
		D	20.0%	20.0%
	35L	A	40.0%	40.0%
		B	13.5%	13.5%
		B1	16.5%	16.5%
		C	30.0%	30.0%
Helicopters	H3	A	50.0%	50.0%
		B	50.0%	50.0%
	H4	A	50.0%	50.0%
		B	50.0%	50.0%
	H5	A	20.0%	20.0%
		B	80.0%	80.0%
	H6	A	100.0%	100.0%

Source: LNK Part 150 and HMMH analysis of radar data

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Table 29 Modeled Track Use for LNK No Action and Proposed Arrivals

Aircraft Category	Runway	Flight Track	Arrivals	
			Day	Night
Air Carrier	14	A	90.1%	89.0%
		C	4.6%	4.6%
		D	5.3%	6.4%
	32	A	62.6%	66.2%
		B	37.4%	33.8%
	17L	A	100.0%	100.0%
	17R	A	82.7%	78.8%
		B	4.7%	4.1%
		C	4.7%	4.1%
		D	4.7%	4.1%
		H	2.6%	7.0%
		I	0.7%	1.7%
	35L	A	90.0%	89.8%
		B	5.0%	5.1%
		C	2.0%	2.0%
		C1	3.0%	3.1%
	35R	A	90.0%	90.4%
		B	5.0%	4.8%
		C	5.0%	4.8%
Regional Jet	14	A	90.0%	90.3%
		C	5.0%	4.8%
		D	5.0%	4.8%
	32	A	60.0%	59.8%
		B	40.0%	40.2%
	17L	A	100.0%	100.0%
	17R	A	85.0%	85.0%
		B	5.0%	5.0%
		C	5.0%	5.0%
		D	5.0%	5.0%
	35L	A	90.0%	90.0%
		B	5.0%	5.0%
		C	2.0%	2.0%
		C1	3.0%	3.0%
	35R	A	90.0%	90.6%
		B	5.0%	4.7%
		C	5.0%	4.7%
General Aviation Jet	14	A	90.0%	90.2%
		C	5.0%	4.9%
		D	5.0%	4.9%
	32	A	60.0%	60.0%
		B	40.0%	40.0%
	17L	A	100.0%	100.0%
	17R	A	85.0%	85.0%
		B	5.0%	5.0%
		C	5.0%	5.0%
		D	5.0%	5.0%



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Aircraft Category	Runway	Flight Track	Arrivals	
			Day	Night
	35L	A	90.0%	90.0%
		B	5.0%	5.0%
		C	2.0%	2.0%
		C1	3.0%	3.0%
	35R	A	90.0%	90.0%
		B	5.0%	5.0%
		C	5.0%	5.0%
Prop	14	A	50.0%	50.0%
		B	10.0%	10.0%
		C	10.0%	10.0%
		D	10.0%	10.0%
		E	10.0%	10.0%
		F	10.0%	10.0%
	32	A	60.0%	59.9%
		B	20.0%	20.0%
		C	20.0%	20.0%
	17L	A	70.0%	70.0%
		B	6.0%	6.0%
		C	6.0%	6.0%
		D	6.0%	6.0%
		E	6.0%	6.0%
		F	6.0%	6.0%
	17R	A	75.0%	75.0%
		B	5.0%	5.0%
		C	5.0%	5.0%
		D	5.0%	5.0%
		F	5.0%	5.0%
		G	5.0%	5.0%
	35L	A	70.0%	70.0%
		B	10.0%	10.0%
		C	4.0%	4.0%
		C1	6.0%	6.0%
		D	10.0%	10.0%
	35R	A	60.0%	60.0%
		B	10.0%	10.0%
		C	10.0%	10.0%
		D	10.0%	10.0%
		E	10.0%	10.0%
Turboprop	14	A	90.0%	90.0%
		C	5.0%	5.0%
		D	5.0%	5.0%
	32	A	60.0%	60.1%
		B	40.0%	39.9%
	17L	A	100.0%	100.0%
	17R	A	85.0%	85.0%
		B	5.0%	5.0%
		C	5.0%	5.0%
		D	5.0%	5.0%
	35L	A	90.0%	90.0%
		B	5.0%	5.0%
		C	2.0%	2.0%
		C1	3.0%	3.0%
	35R	A	90.0%	90.0%

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Aircraft Category	Runway	Flight Track	Arrivals	
			Day	Night
		B	5.0%	5.0%
Turboprop	35R	C	5.0%	5.0%
Military	14	A	90.0%	90.1%
		D	10.0%	9.9%
	32	A	100.0%	100.0%
	17R	A	50.0%	50.0%
		H	40.0%	40.0%
		I	10.0%	10.0%
	35L	A	90.0%	90.0%
		B	5.0%	5.0%
		C	2.0%	2.0%
		C1	3.0%	3.0%
Helicopters	H3	A	50.0%	50.0%
		B	50.0%	50.0%
	H4	A	50.0%	50.0%
		B	50.0%	50.0%
	H5	A	100.0%	100.0%
	H6	A	20.0%	20.0%
		B	80.0%	80.0%

Source: LNK Part 150 and HMMH analysis of radar data



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Table 30 Modeled Track Use for LNK Touch & Go Tracks

Aircraft Category	Runway	Flight Track	Touch & Go's	
			Day	Night
Air Carrier	14	B	100.0%	100.0%
	32	B	100.0%	100.0%
	17R	D	100.0%	100.0%
	35L	D	100.0%	100.0%
Prop	14	A	100.0%	100.0%
	32	A	100.0%	100.0%
	17L	A	100.0%	100.0%
	17R	A	100.0%	100.0%
	35L	A	100.0%	100.0%
	35R	A	100.0%	100.0%
Turboprop	14	B	100.0%	100.0%
	32	B	100.0%	100.0%
	17R	B	20.0%	20.1%
		C	80.0%	79.9%
	35L	B	20.0%	19.9%
		C	80.0%	80.1%
Military	14	B	100.0%	100.0%
	32	B	100.0%	100.0%
	17R	B	1.3%	1.3%
		C	5.1%	5.1%
		D	93.7%	93.7%
	35L	B	1.3%	1.3%
		C	5.1%	5.1%
		D	93.7%	93.7%
Helicopters	14	A	100.0%	100.0%
	32	A	100.0%	100.0%
	17L	A	100.0%	100.0%
	17R	A	100.0%	100.0%
	35L	A	100.0%	100.0%
	35R	A	100.0%	100.0%
Helicopters	H1	A	100.0%	100.0%
	H2	A	100.0%	100.0%

Source: LNK Part 150 and HMMH analysis of radar data



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Table 31 Modeled Track Use for OFF No Action Arrivals for All Aircraft Categories

Aircraft Category	Runway	Flight Track	Arrivals		Navigation Point
			Day	Night	
All	12	12A1	9.3%	9.3%	ONL
		12A2	43.0%	43.0%	LNK
		12A3	21.5%	21.5%	PWE
		12A4	13.1%	13.1%	DSM
		12A5	13.1%	13.1%	DSM
	30	30A1	16.3%	16.3%	STJ/LMN
		30A2	23.3%	23.3%	PWE
		30A3	4.7%	4.7%	LMN
		30A4	25.6%	25.6%	DSM
		30A5	3.4%	3.4%	SUX
		30A6	26.7%	26.7%	LNK

Source: HMMH analysis of radar data

Table 32 Modeled Track Use for OFF Proposed Arrivals for All Aircraft Categories

Aircraft Category	Runway	Flight Track	Arrivals		Navigation Point
			Day	Night	
All	12	12_ONL	43.0%	43.0%	HOWRY
		12_LMN	13.1%	13.1%	MARWI
		12_SUX	9.3%	9.3%	PEARY
		12_PWE	21.5%	21.5%	TIMMO
		12_DSM	13.1%	13.1%	LANTK
	30	30_ONL	26.7%	26.7%	HOWRY
		30_LMN	20.9%	20.9%	MARWI
		30_SUX	3.4%	3.4%	PEARY
		30_PWE	23.3%	23.3%	TIMMO
		30_DSM	25.6%	25.6%	LANTK

Source: HMMH analysis of radar data and FAA

Table 33 Modeled Track Use for OFF No Action and Proposed Departures for All Aircraft Categories

Aircraft Category	Runway	Flight Track	Departures		Navigation Point
			Day	Night	
All	12	12D1	9.0%	9.0%	OBH
		12D2	26.9%	26.9%	LNK
		12D3	19.3%	19.3%	PWE
		12D4	23.4%	23.4%	DSM
		12D5	15.9%	15.9%	STJ/LMN
		12D6	5.5%	5.5%	SUX
	30	30D1	5.3%	5.3%	ONL
		30D2	30.9%	30.9%	PWE
		30D3	34.4%	34.4%	LNK
		30D4	4.4%	4.4%	OBH
		30D5	1.5%	1.5%	SUX
		30D6	23.5%	23.5%	DSM

Source: HMMH analysis of radar data



Table 34 Modeled Track Use for OFF Touch & Go Tracks All Aircraft Categories

Aircraft Category	Runway	Flight Track	Touch & Go's		Description
			Day	Night	
All	12	12_TA	14.0%	14.0%	Outside pattern- Straight in final
		12_TA5	17.0%	17.0%	Outside pattern- Offset Final
		12_TB	69.0%	69.0%	Inside pattern
	30	30_TA	42.0%	42.0%	Outside pattern
		30_TB	58.0%	58.0%	Inside pattern

Source: HMMH analysis of radar data



2.6 Meteorological Conditions

The NIRS has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, relative humidity, and average headwind speed at the airport. HMMH reviewed six years of weather data (1998 to 2003) from the National Climatic Data Center (<http://www.ncdc.noaa.gov>) for OMA (WBAN # 14942). Based on analysis of the NCDC data, the average annual conditions for OMA are an average annual temperature of 52.7 degrees Fahrenheit, sea level pressure of 28.95 in-Hg and a relative humidity of 71.3 percent.

2.7 Modeling Locations

While the previous sections have discussed parameters that affect the noise source considered in this study, i.e. aircraft operations, this section will discuss the various modeling locations, or noise receivers, for which aircraft noise exposure levels were computed using NIRS. Presumably, these locations represent noise sensitive land use, or other locations of interest. For this study several different types of locations were identified in the study area and these locations are represented by a total of 74,496 individual model points.

2.7.1 US Census Bureau Data

Data from the US Census 2000⁷, provided by the US Census Bureau, were loaded into NIRS. There are 35,805 census blocks within the study area that represent a total of 1,183,886 people. The census blocks are represented by the geographic centroid. These centroids are depicted in Figure 8 and color-coded based on the represented population. The cooler colors, purple, blue and green represent smaller populations (less than 100 people) while the warmer colors, yellow, orange, and red represent larger populations (100 or more people). There are two large population centers that can be seen in these graphics, including:

- Omaha, which is located to the west/southwest of OMA and to the northwest of both OFF and the study center; and

⁷ This data can be downloaded from http://www2.census.gov/census_2000/datasets/redistricting_file--pl_94-171. Additional information about the 2000 US Census can be found at <http://www.census.gov>

- Lincoln, which is located to the southeast of LNK and on the southwest side of the study area.

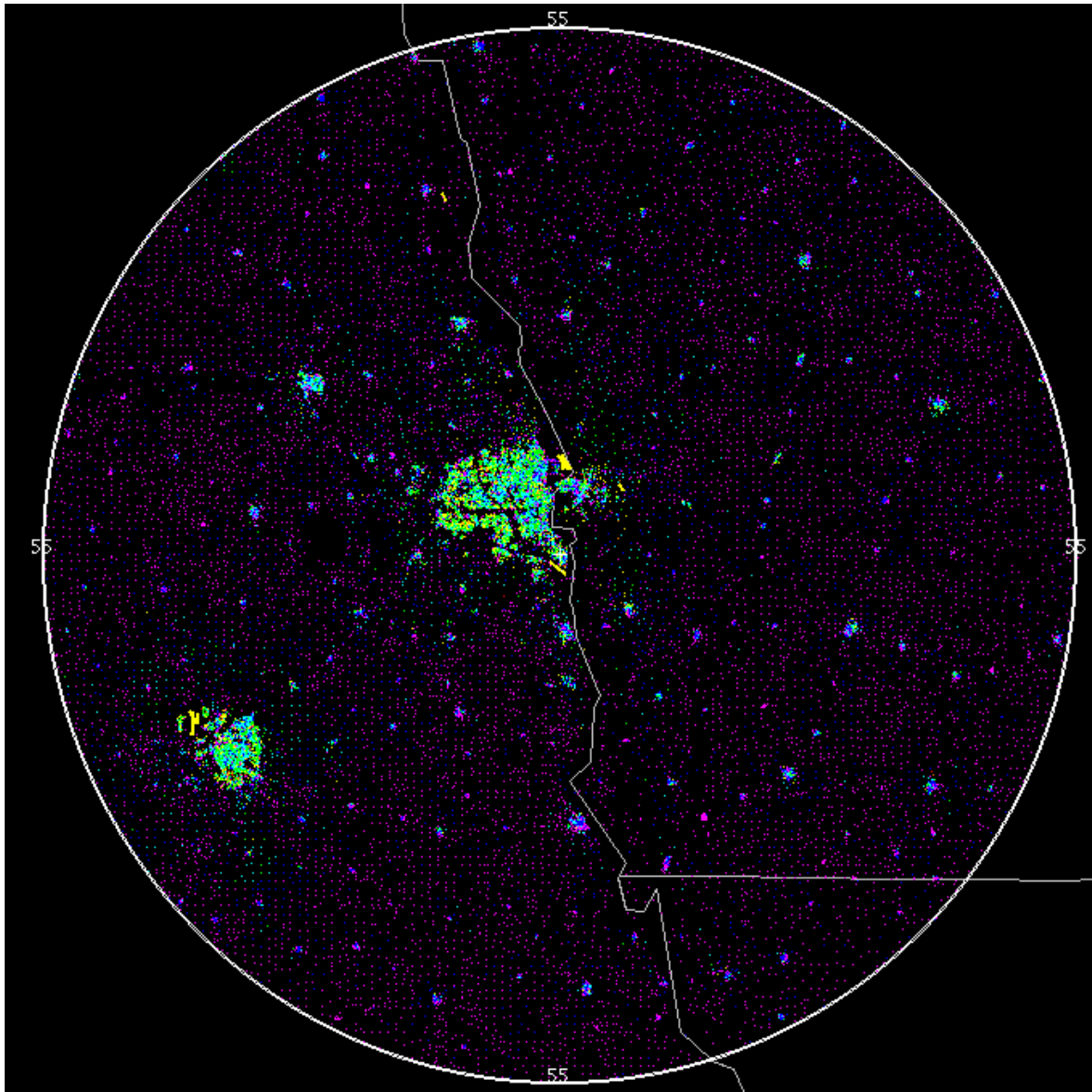


Figure 8 U.S. 2000 Census Data
State Boundaries are gray
Outer white circle represents study boundary
OMA, OFF, LNK, TQE and CBF runways can be seen (Yellow)

2.7.2 Historical Locations

NGIT provided a list of historical locations throughout the study area. This study includes 95 historic sites in Iowa, seven in Missouri, and 315 in Nebraska.

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2.7.3 Parks

NGIT provided a list of state and county parks. In all, a total of 109 noise receivers were modeled to represent various parks within the study area.

2.7.4 Grid Points

A fixed grid was created to capture changes in noise that may not be captured by the previously mentioned points. The grid as a half-nautical mile (approximately 3,000 ft) grid spacing and covers the entire study area. This grid ensures that every location within the study area has at least modeling point within 2,200 ft. There are a total of 38,165 points in this grid.



2.7.5 Terrain data

Terrain data allow the receivers to be modeled either closer to or further away from the modeled aircraft. Terrain data was provided by the U.S. Geological Survey (USGS). Terrain data were entered into NIRS as USGS 1:250,000 scale DEM format⁸.

3. RESULTS

The preceding inputs were entered into NIRS, and NIRS provided DNL value for the modeling points identified in Section 2.7. This section provides a summary of the results for the five scenarios considered⁹.

FAA Order 1050.1E specifies the noise criteria that should be used for environmental assessments considering changes to airspace. The noise results associated with the proposed action scenarios are compared to the respective time-frame's no-action noise results and FAA's criteria. Table 35 summarizes the FAA's criteria. Each of the 74,496 points modeled were compared to the criteria.

Table 35 Summary of FAA Noise Criteria for Environmental Assessments

DNL Exposure Interval of Alternative or Proposed Action	Minimum Change in DNL	Degree of Impact
Less than 45 dB	n/a	Minimal
45 dB to less than 60 dB	+/- 5 dB	More than Minimal; Slight-to-Moderate
60 dB to less than 65 dB	+/- 3 dB	More than Minimal; Slight-to-Moderate
Greater than or equal to 65 dB	+ 1.5 dB	Significant Impact

Note:

These criteria apply to noise sensitive areas

Change in DNL is defined as the difference in a specific point for the proposed action scenario and the no action scenario for the same forecast year.

Source: FAA Order 1050.1E, Appendix A, Section 14.3 and Section 14.5e

⁸ The data are available free of charge at <http://edc.usgs.gov/geodata/>

⁹ The complete set of results was sent to NGIT electronically March 11, 2005

3.1 Existing (2003) conditions

Figure 9 presents the noise values for the 2003 existing conditions. These noise calculations were based on the following data sets.

- Airfield layout from Section 2.2;
- Operations from Table 3, Table 6 and Table 9 for OMA, LNK and OFF, respectively;
- Runway use from Section 2.4;
- Departure flight track usage from Table 25, Table 28 and Table 33 for OMA, LNK and OFF, respectively;
- Touch and Go flight track usage from Table 30 and Table 34 for LNK and OFF, respectively;
- Arrival flight track usage from Table 26, Table 29 and Table 31 for OMA, LNK and OFF, respectively;
- Meteorological Data from Section 2.6; and
- Modeling locations from Section 2.7.

As shown in Figure 9, noise levels of 45 dB DNL and higher remain relatively close to the three study airports. Noise associated with touch and go patterns can be seen to the southwest of OFF and to the west of LNK. There are some “puddles” of noise levels greater than 45 dB DNL surrounded with noise levels below 45 dB DNL to the north of LNK and to the west and northwest of OFF. OMA’s noise footprint is smaller than OFF or LNK because OMA does not have as many operations of relatively noisy military jets, as the other two airports do.



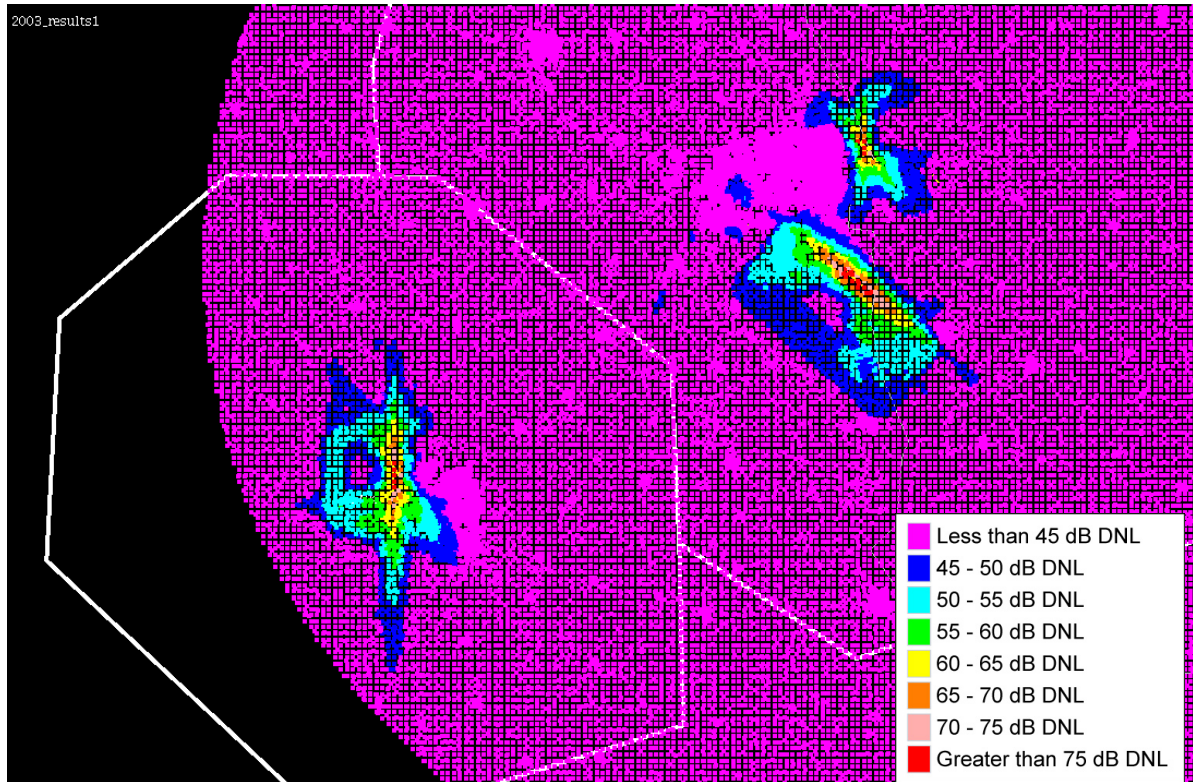


Figure 9 2003 DNL values
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries

3.2 First year of proposed implementation (2006) – No Action

Figure 10 presents the noise values for the 2006 no action conditions. These noise calculations were based on the following data sets.

- Airfield layout from Section 2.2;
- Operations from Table 4, Table 7 and Table 9 for OMA, LNK and OFF, respectively;
- Runway use from Section 2.4;
- Departure flight track usage from Table 25, Table 28 and Table 33 for OMA, LNK and OFF, respectively;
- Touch and Go flight track usage from Table 30 and Table 34 for LNK and OFF, respectively;
- Arrival flight track usage from Table 26, Table 29 and Table 31 for OMA, LNK and OFF, respectively;
- Meteorological Data from Section 2.6; and
- Modeling locations from Section 2.7.

These noise modeling inputs are identical to the inputs for the 2003 existing conditions with the exception of the operations forecasts for 2006 conditions. The noise footprint of noise values at or above 45 dB DNL decreases slightly at LNK while increasing slightly at OMA and to some extent at OFF where OMA traffic overflies OFF traffic.



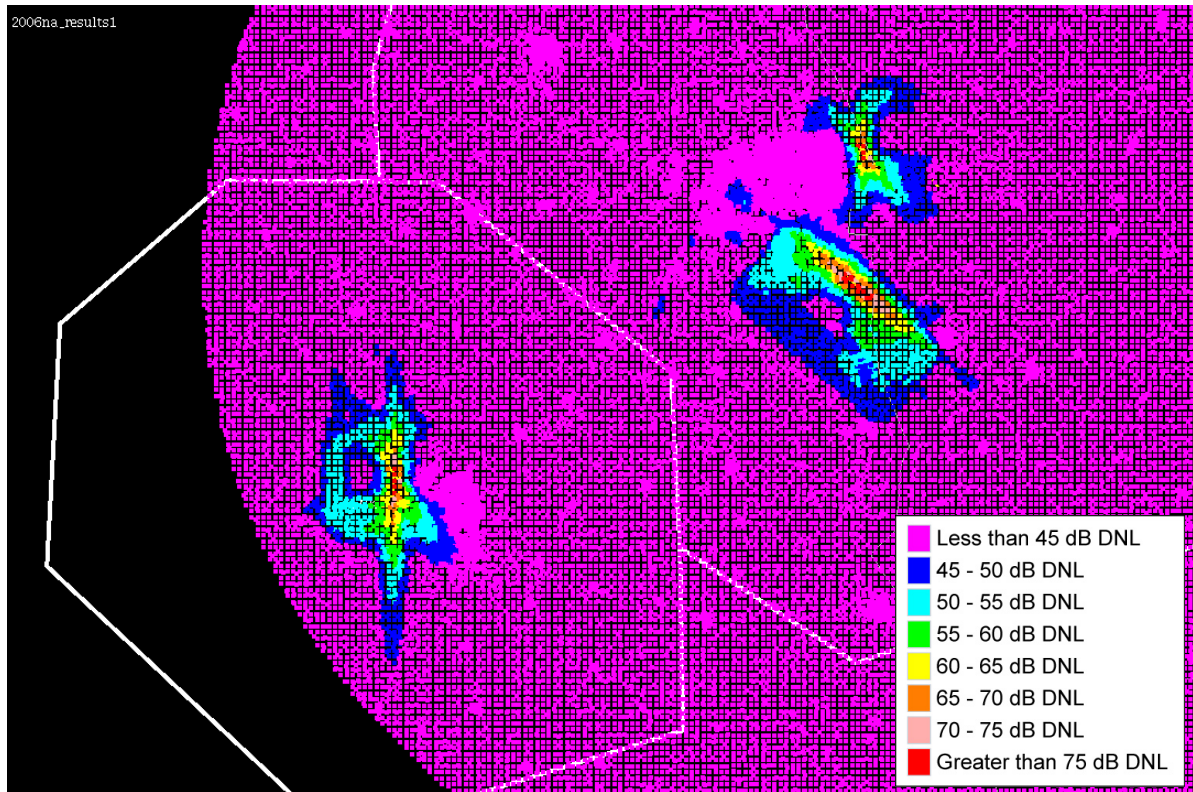


Figure 10 2006 No action DNL values
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries

3.3 Future year of proposed implementation (2011) – No Action

Figure 11 presents the noise values for the 2006 no action conditions. These noise calculations were based on the following data sets.

- Airfield layout from Section 2.2;
- Operations from Table 5, Table 8 and Table 9 for OMA, LNK and OFF, respectively;
- Runway use from Section 2.4;
- Departure flight track usage from Table 25, Table 28 and Table 33 for OMA, LNK and OFF, respectively;
- Touch and Go flight track usage from Table 30 and Table 34 for LNK and OFF, respectively;
- Arrival flight track usage from Table 26, Table 29 and Table 31 for OMA, LNK and OFF, respectively;
- Meteorological Data from Section 2.6; and
- Modeling locations from Section 2.7.

These noise modeling inputs are identical to the inputs for the 2003 existing conditions with the exception of the operations forecasts for 2011 conditions. The noise footprint of noise values at or above 45 dB DNL decreases slightly at LNK while increasing slightly at OMA and to some extent at OFF where OMA traffic overflies OFF traffic.



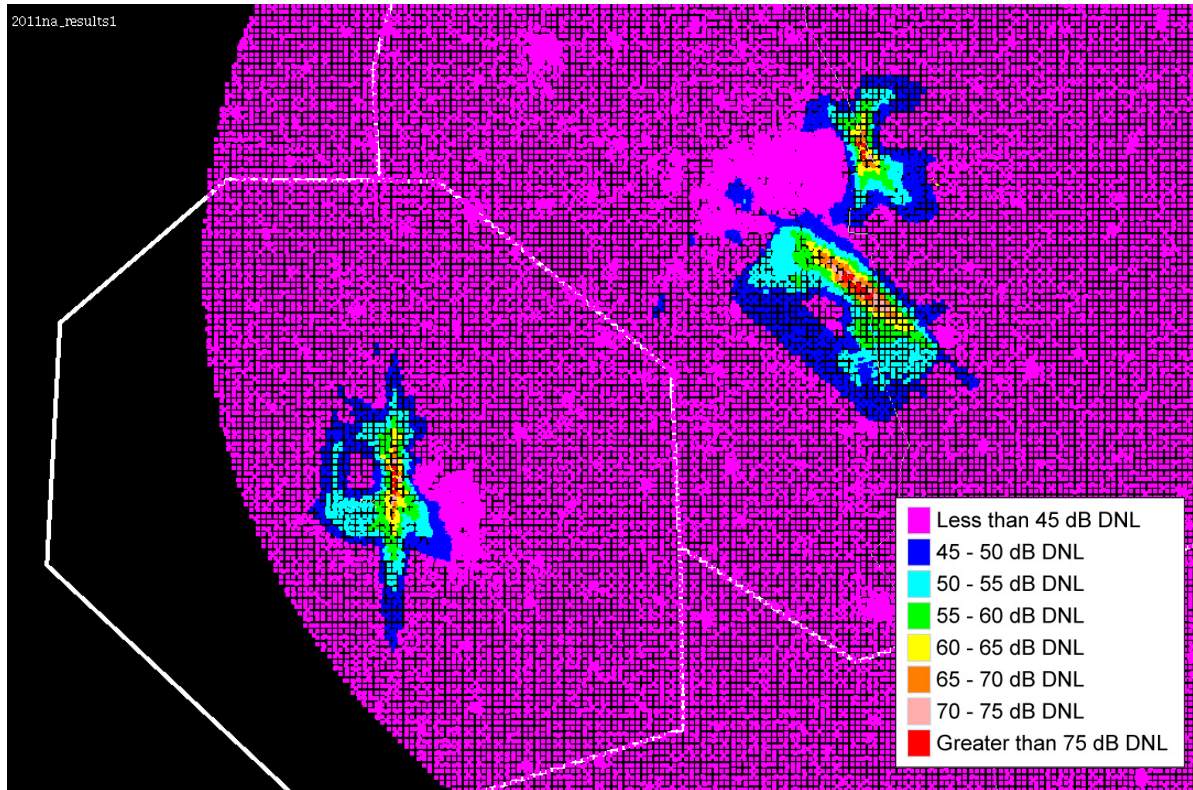


Figure 11 2011 No Action DNL Values
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries

3.4 First year of proposed implementation (2006) – Proposed Action

Figure 12 presents the noise values for the 2006 proposed action conditions. These noise calculations were based on the following data sets.

- Airfield layout from Section 2.2;
- Operations from Table 4, Table 7 and Table 9 for OMA, LNK and OFF, respectively;
- Runway use from Section 2.4;
- Departure flight track usage from Table 25, Table 28 and Table 33 for OMA, LNK and OFF, respectively;
- Touch and Go flight track usage from Table 30 and Table 34 for LNK and OFF, respectively;
- Arrival flight track usage from Table 27, Table 29 and Table 32 for OMA, LNK and OFF, respectively;
- Meteorological Data from Section 2.6; and
- Modeling locations from Section 2.7.

The only changes in the noise modeling input, compared to the 2006 no-action, are the arrival flight tracks and flight tracks use. The proposed action does cause some changes to the 45 dB DNL footprint.

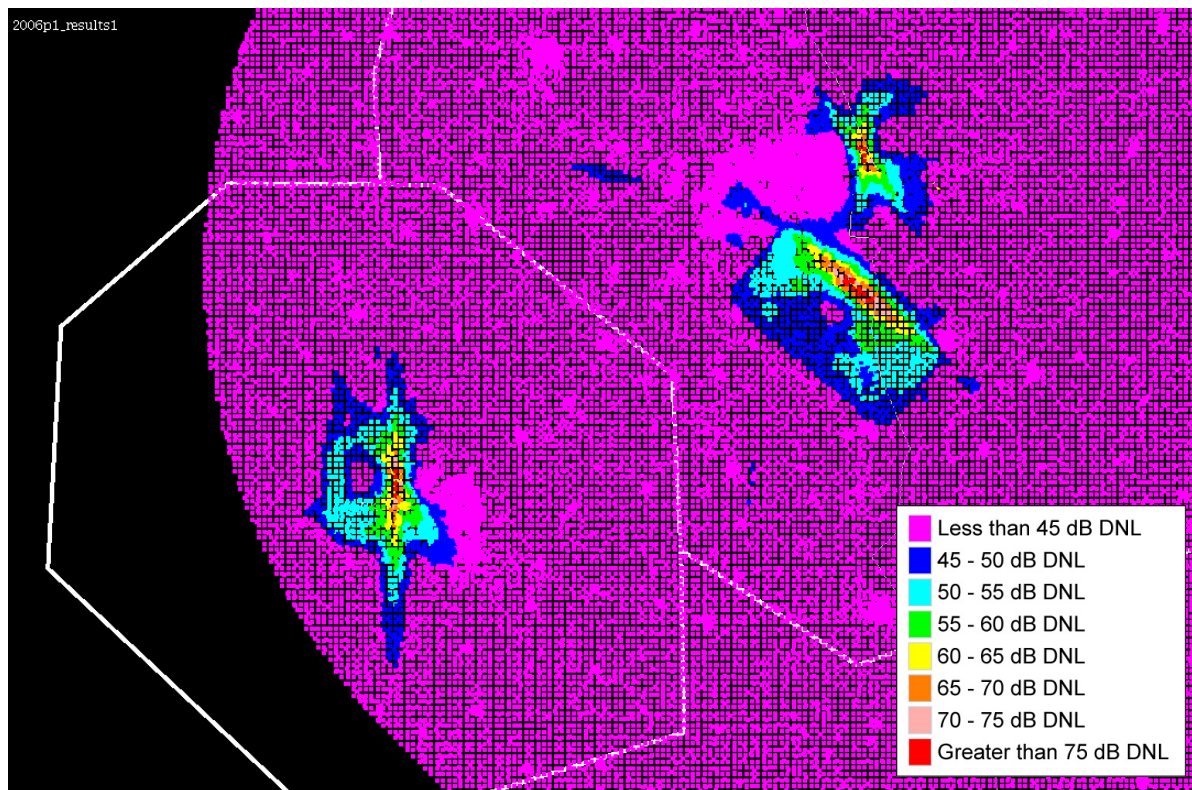


Figure 12 2006 Proposed Action DNL values
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries

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Comparing the individual noise values for the 2006 proposed action to the 2006 no-action and FAA criteria (Table 35), there is no significant impact. In addition, there are no 3dB changes between 60 dB DNL and 65 dB DNL. The largest change in DNL at any point that is at or above 60 dB DNL in the 2006 proposed action is less than half a dB. All 1.5 dB or greater increases in DNL between the proposed action and the no-action are at proposed action levels below 53 dB DNL and all 3 dB or greater increases in DNL noise are at proposed action levels below 48 dB DNL.

There are 5 dB changes in DNL between 45 dB DNL and 50 dB DNL but there are no 5 dB changes between 50 dB DNL and 60 dB DNL. Figure 13 presents the five areas that have changes of 5 dB or more between the 45 dB DNL and 50 dB DNL. These areas are discussed in greater detail in Table 36.

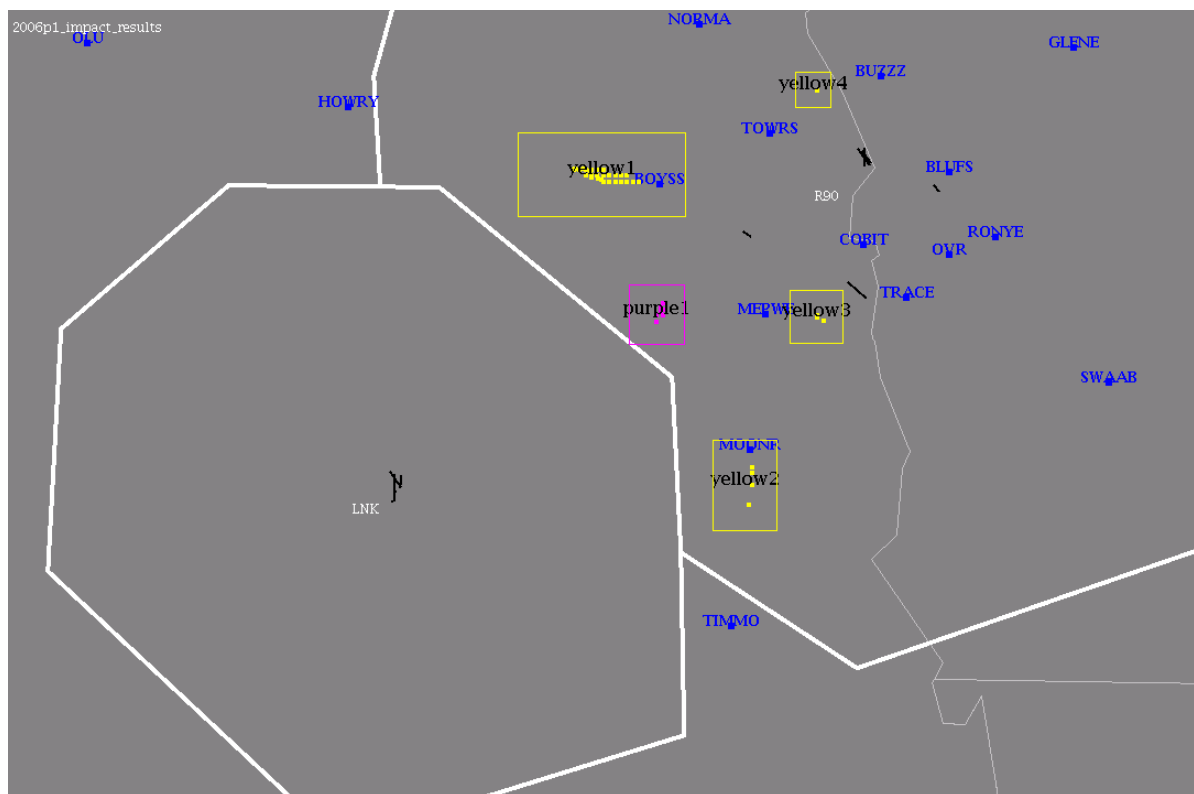


Figure 13 2006 Proposed Action Noise Change Analysis
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries
Navigation Points are shown in blue
Yellow points have 5 dB or greater increase between 45 dB DNL and 60 dB DNL
Purple points have 5 dB or greater decrease between 45 dB DNL and 60 dB DNL

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Table 36 Reason for Change In Aircraft Noise Exposure for 2006 Proposed Action Alternative Relative to the No Action Alternative

Area of Change	Reason for Change	Estimated Affected Population (U.S. Census 2000)	Noise Levels
Yellow1	Proposed OMA and OFF arrival route from HOWRY to BOYSS. This is between HOWRY and BOYSS and between 1 and 8.5 nautical miles from BOYSS. Aircraft would overfly HOWRY between 11,000 ft MSL and 15,000 ft MSL and descend to 6,000 ft MSL while flying to BOYSS. After BOYSS, aircraft would be vectored, or dispersed, by Air Traffic Controllers so the aircraft can land on the active runway at either OMA or OFF.	61	The proposed action noise levels in this area are estimated to be 47 dB DNL or lower; This is an increase of 8 to 11 dB compared to the no-action.
Yellow2	Proposed OMA and OFF arrival route from TIMMO to MOONR. This is between TIMMO to MOONR and between 1.5 and 4.8 nautical miles from MOONR. Aircraft would overfly TIMMO between 11,000 ft MSL and 15,000 ft MSL and descend to 7,000 ft MSL while flying to MOONR. After MOONR, aircraft would be vectored, or dispersed, by Air Traffic Controllers so the aircraft can land on the active runway at either OMA or OFF.	9	The proposed action noise levels in this area are estimated to be 45 dB DNL or lower; This is an increase of 18 to 20 dB compared to the no-action.
Yellow3	OFF arrivals to Runway 30 from the proposed HOWRY to BOYSS would fly southeast over this location on a downwind. Because of the location of BOYSS relative to OFF Runway 12-30, the aircraft flying the downwind are likely to be closer to OFF than the current downwind. This location is between the two modeled OFF patterns.	43	The proposed action noise levels in this area are estimated to be 46 dB DNL or lower; This is an increase of 5 to 6 dB compared to the no-action.
Yellow4	Arrivals to OMA Runway 32R and Runway 32L are likely to fly a longer final with the proposed action. This location is approximately 5.8 nautical miles out on extended Runway 32R centerline.	0	The proposed action noise levels in this area are estimated to be 46 dB DNL or lower; This is an increase of 6 dB compared to the no-action.
Purple1	This area is likely to experience a decrease in noise because OFF arrivals to Runway 12 will no longer be routed over this area.	92	The proposed action noise levels in this area are estimated to be approximately 10 dB lower than the no-action alternative.



3.5 Future year of proposed implementation (2011) – Proposed Action

Figure 14 presents the noise values for the 2011 proposed action conditions. These noise calculations were based on the following data sets.

- Airfield layout from Section 2.2;
- Operations from Table 5, Table 8 and Table 9 for OMA, LNK and OFF, respectively;
- Runway use from Section 2.4;
- Departure flight track usage from Table 25, Table 28 and Table 33 for OMA, LNK and OFF, respectively;
- Touch and Go flight track usage from Table 30 and Table 34 for LNK and OFF, respectively;
- Arrival flight track usage from Table 27, Table 29 and Table 32 for OMA, LNK and OFF, respectively;
- Meteorological Data from Section 2.6; and
- Modeling locations from Section 2.7.

The only changes in the noise modeling input, compared to the 2011 no-action, are the arrival flight tracks and flight tracks use.

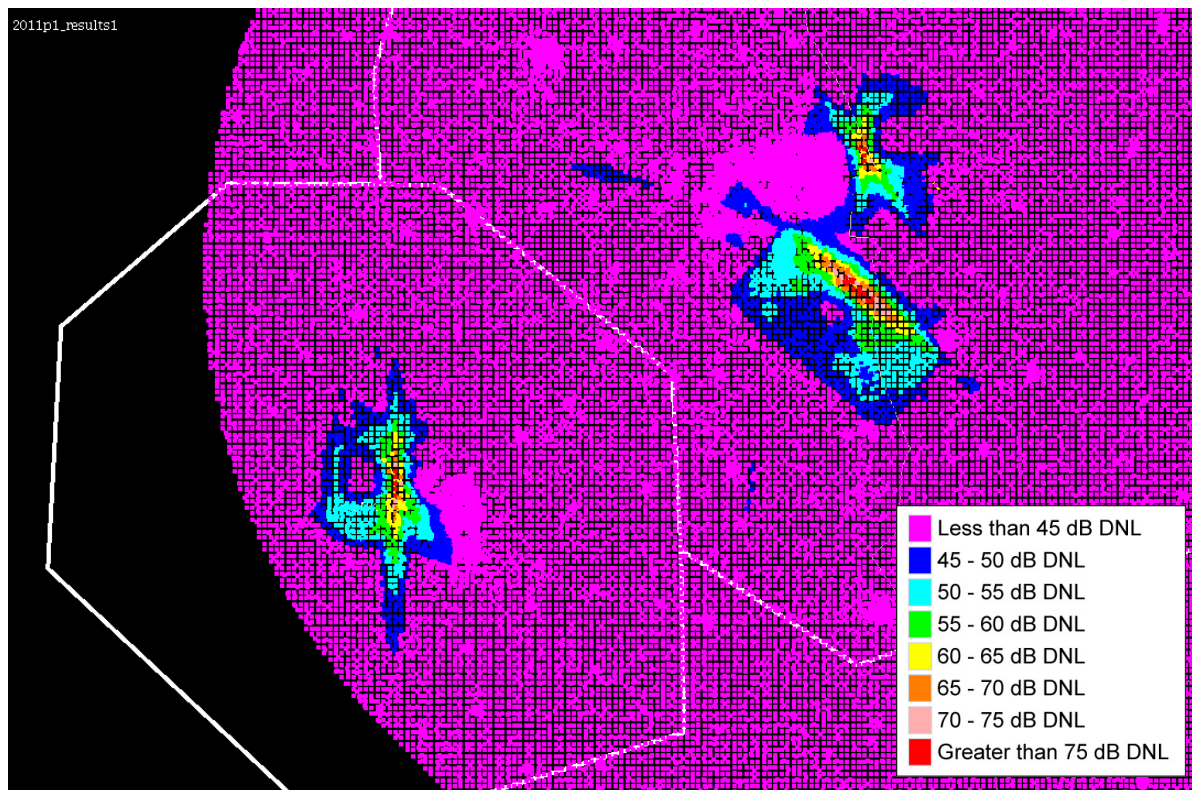


Figure 14 2011 Proposed Action DNL values
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries

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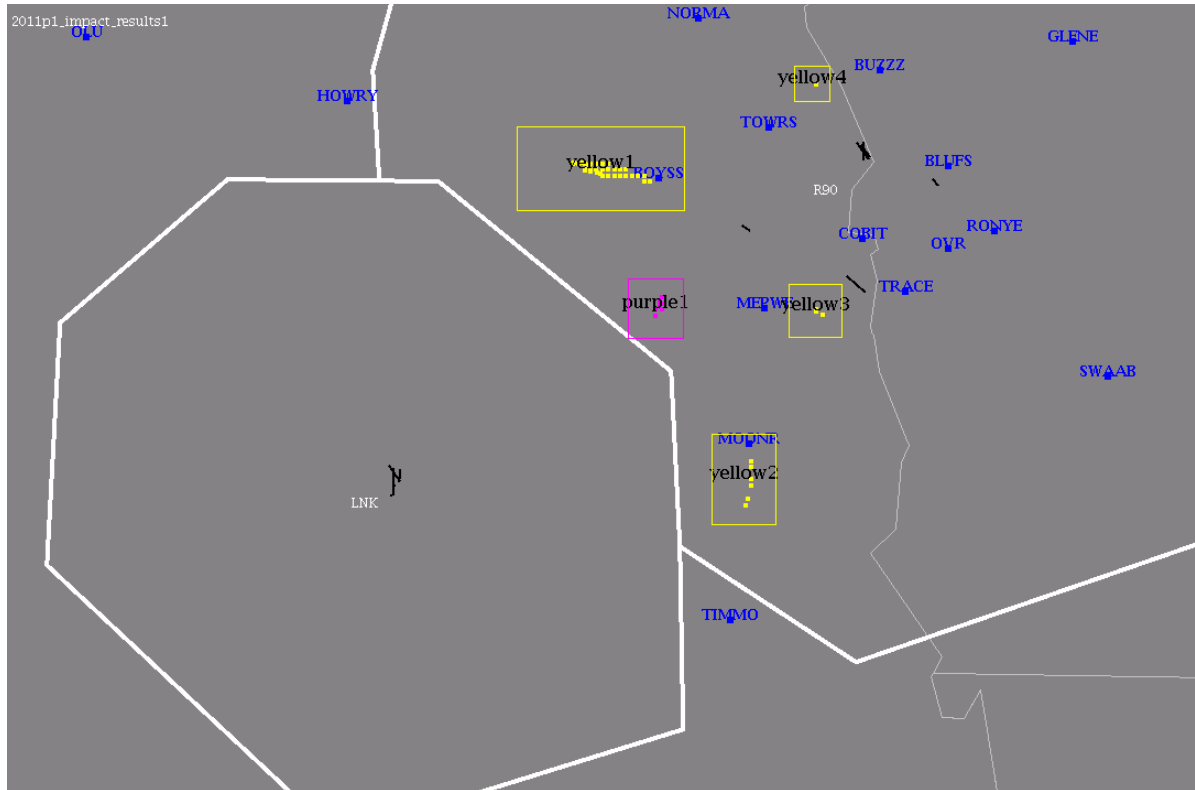


Figure 15 2011 Proposed Action Noise Change Analysis
Areas not shown have DNL values less than 45 dB DNL
White Lines represent LNK and R90 TRACON Boundaries
Navigation Points are shown in blue

Yellow points have 5 dB or greater increase between 45 dB DNL and 60 dB DNL

Purple points have 5 dB or greater decrease between 45 dB DNL and 60 dB DNL

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**Table 37 Reason for Change In Aircraft Noise Exposure for 2011 Proposed Action Alternative
Relative to the No Action Alternative**

Area of Change	Reason for Change	Estimated Affected Population (U.S. Census 2000)	Noise Levels
Yellow1	See Table 37	125	The proposed action noise levels in this area are estimated to be 47 dB DNL or lower; This is an increase of 7 to 10 dB compared to the 2011 no-action.
Yellow2	See Table 37	9	The proposed action noise levels in this area are estimated to be 45 dB DNL or lower; This is an increase of 18 to 20 dB compared to the no-action.
Yellow3	See Table 37	43	The proposed action noise levels in this area are estimated to be 46 dB DNL or lower; This is an increase of 5 to 6 dB compared to the no-action.
Yellow4	See Table 37	0	The proposed action noise levels in this area are estimated to be 46 dB DNL or lower; This is an increase of 6 dB compared to the no-action.
Purple1	See Table 37	92	The proposed action noise levels in this area are estimated to be approximately 10 dB lower than the no-action alternative.



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Appendix

APPENDIX A

DESCRIPTION OF THE PROPOSED ACTION

The following five TARGETS distribution packages describe the proposed action.



HOWRY

Point Of Contact

ATC Facility Name - R90

POC's Name - Tim Ryan

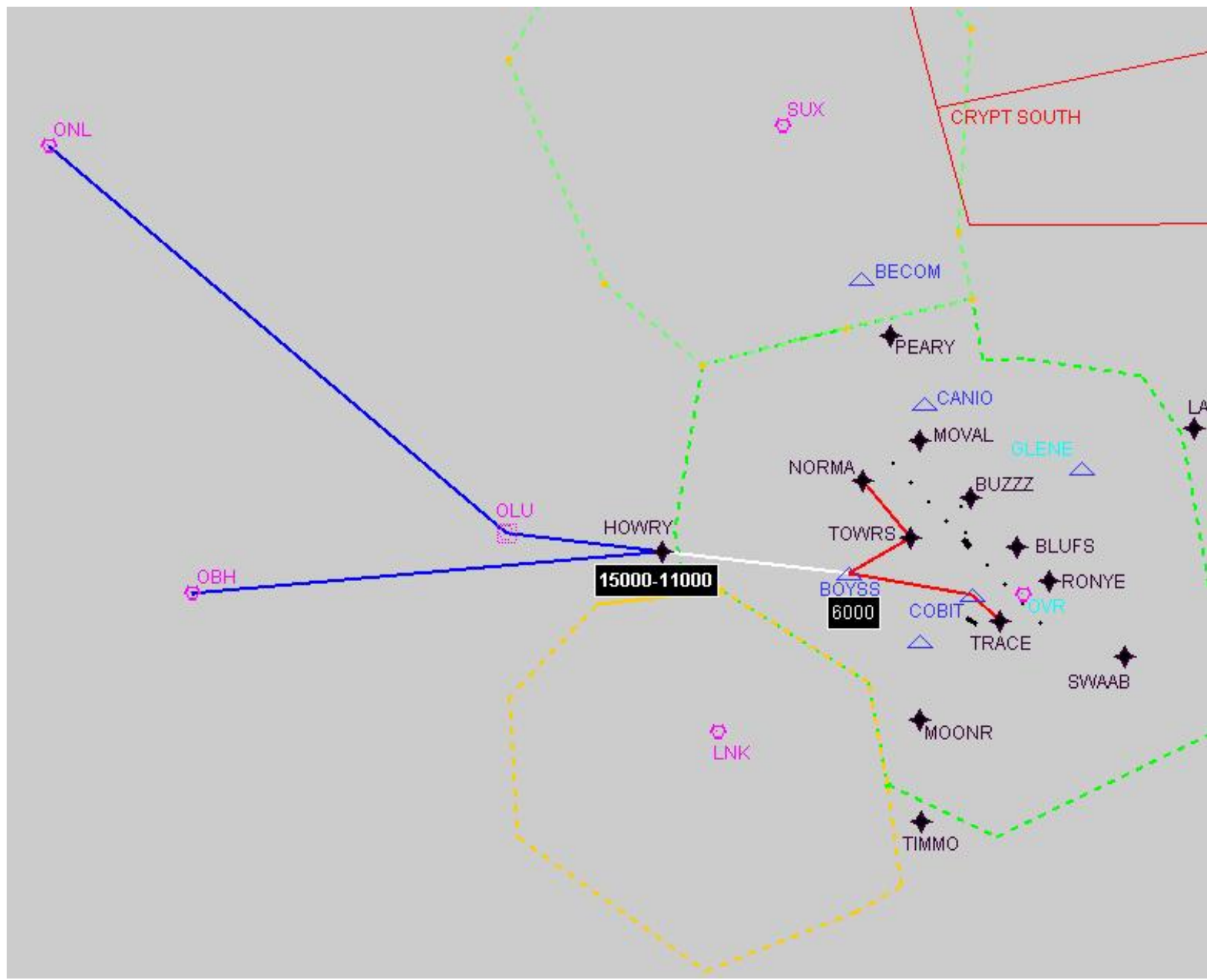
Telephone Number - 402-291-3644

FAX Number - 402-291-0809

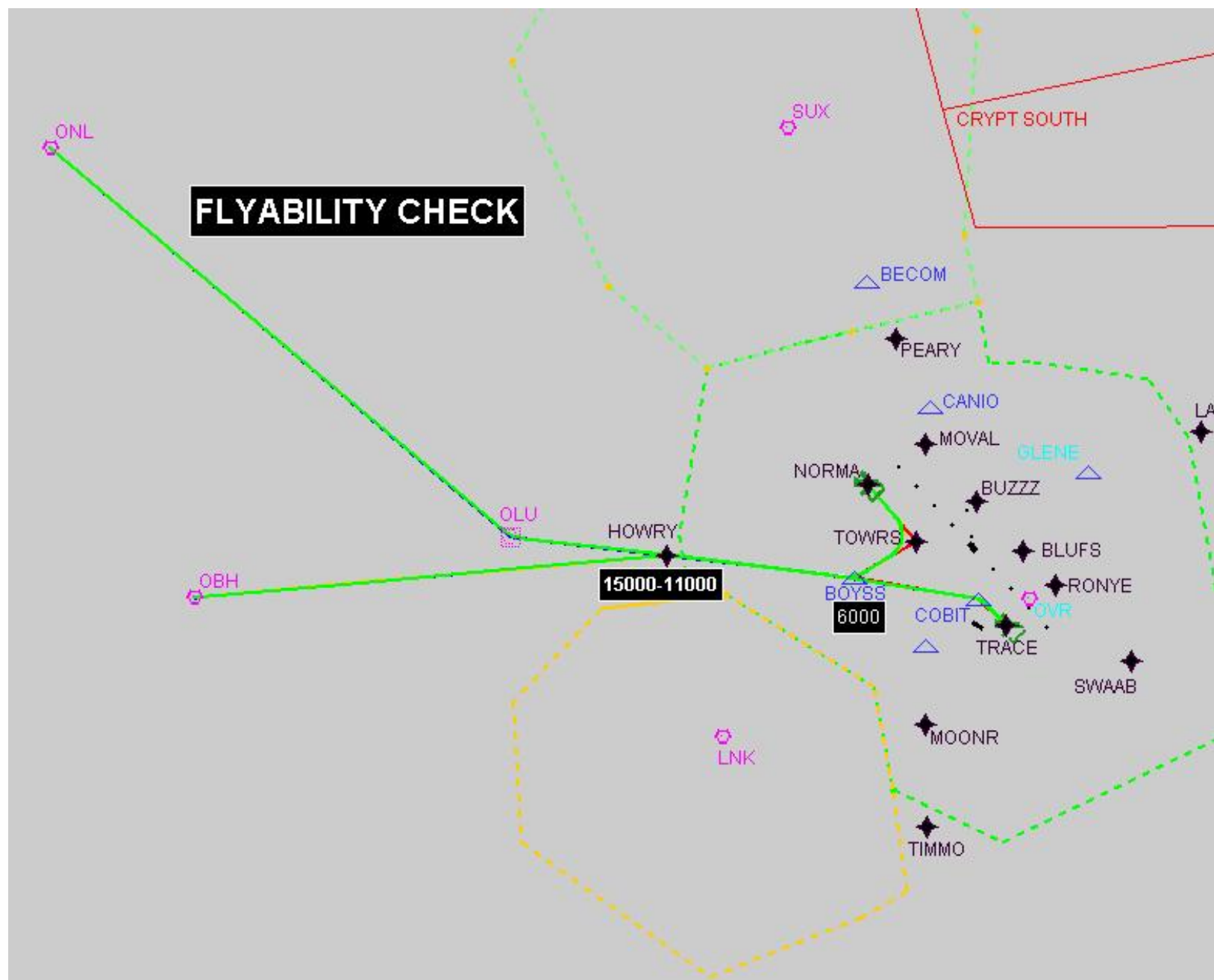
Email Address - tim.m.ryan@faa.gov

TARGETS Distribution Package

HOWRY



HOWRY



HOWRY

En Route Transition Data - ET_HOWRY OBH

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	OBH VORTAC		IF		N41 22 32.65	W098 21 12.94		
	HOWRY WP	67.75	TF	FB	N41 22 00.69	W096 51 13.67	11000	

En Route Transition Data - ET_HOWRY ONL

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	ONL VORTAC		IF		N42 28 13.81	W098 41 12.92		
Y	OLU VOR/DME	85.88	TF	FB	N41 27 00.14	W097 20 26.95		
	HOWRY WP	22.55	TF	FB	N41 22 00.69	W096 51 13.67	11000	

Common Route Data - CR_HOWRY

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	HOWRY WP		IF		N41 22 00.69	W096 51 13.67	11000	
Y	BOYSS WP	26.94	TF	FB	N41 15 52.80	W096 16 24.84	6000	

Runway Transition Data - RT_HOWRY RWY 32/36

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	BOYSS WP		IF		N41 15 52.80	W096 16 24.84	6000	
Y	COBIT WP	17.84	TF	FB	N41 10 55.19	W095 53 42.52	6000	
	TRACE WP	5.62	TF	FB	N41 06 34.42	W095 48 59.02	6000	

Runway Transition Data - RT_HOWRY RWY14/18

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	BOYSS WP		IF		N41 15 52.80	W096 16 24.84	6000	
	TOWRS WP	10.13	TF	FB	N41 20 02.26	W096 04 09.69	5000	
	NORMA WP	10.74	TF	FB	N41 28 59.92	W096 12 01.66	4000	

HOWRY

Created : Tue Jul 06 14:49:47 CDT 2004

Waypoint Data

NFDC	Waypoint	Latitude (Deg)	Longitude (Deg)	Latitude (Deg, Decimal Min)	Longitude (Deg, Decimal Min)	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
Y	BOYSS WP	N 41.2646667	W 96.2735667	N41 15.88	W96 16.41	N41 15 52.80	W096 16 24.84
Y	COBIT WP	N 41.1819972	W 95.8951444	N41 10.92	W95 53.71	N41 10 55.19	W095 53 42.52
	HOWRY WP	N 41.3668578	W 96.8537971	N41 22.01	W96 51.23	N41 22 00.69	W096 51 13.67
	NORMA WP	N 41.4833118	W 96.2004606	N41 29.00	W96 12.03	N41 28 59.92	W096 12 01.66
Y	OBH VORTAC	N 41.3757356	W 98.3535953	N41 22.54	W98 21.22	N41 22 32.65	W098 21 12.94
Y	OLU VOR/DME	N 41.4500392	W 97.3408186	N41 27.00	W97 20.45	N41 27 00.14	W097 20 26.95
Y	ONL VORTAC	N 42.4705031	W 98.6869217	N42 28.23	W98 41.22	N42 28 13.81	W098 41 12.92
	TOWRS WP	N 41.3339610	W 96.0693586	N41 20.04	W96 04.16	N41 20 02.26	W096 04 09.69
	TRACE WP	N 41.1095614	W 95.8163938	N41 06.57	W95 48.98	N41 06 34.42	W095 48 59.02

FAA Criteria Check Results - ET 18:CR 20:RT 47

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	ONL VORTAC	IF											0	Pass	
Y	OLU VOR/DME	TF	FB			134.99	128.99	32.4	Pass	0	0	2.3	85.9	Pass	
	HOWRY WP	TF	FB	11000.0		102.62	096.62	0.3	Pass	2.3	2.3	2.3	22.5	Pass	
Y	BOYSS WP	TF	FB	6000.0		102.96	096.96	3.1	Pass	0	0	0.1	26.9	Pass	
Y	COBIT WP	TF	FB	6000.0		106.01	100.01	34.5	Pass	0.1	0.1	1.4	17.8	Pass	
	TRACE WP	TF	FB	6000.0		140.56	134.56			1.3	1.3	1.3	5.6	Pass	

FAA Criteria Check Results - ET 18:CR 20:RT 26

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	ONL VORTAC	IF											0	Pass	
Y	OLU VOR/DME	TF	FB			134.99	128.99	32.4	Pass	0	0	2.3	85.9	Pass	
	HOWRY WP	TF	FB	11000.0		102.62	096.62	0.3	Pass	2.3	2.3	2.3	22.5	Pass	
Y	BOYSS WP	TF	FB	6000.0		102.96	096.96	37.3	Pass	0	0	1.4	26.9	Pass	
	TOWRS WP	TF	FB	5000.0		065.71	059.71	99.1	Pass	1.4	1.4	6.4	10.1	Pass	
	NORMA WP	TF	FB	4000.0		326.58	320.58			5	5	5	10.7	Pass	

HOWRY

Created : Tue Jul 06 14:49:47 CDT 2004

FAA Criteria Check Results - ET 19:CR 20:RT 47

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	OBH VORTAC	IF											0	Pass	
	HOWRY WP	TF	FB	11000.0		089.95	083.95	13	Pass	0	0	0.9	67.8	Pass	
Y	BOYSS WP	TF	FB	6000.0		102.96	096.96	3.1	Pass	0.9	0.9	1	26.9	Pass	
Y	COBIT WP	TF	FB	6000.0		106.01	100.01	34.5	Pass	0.1	0.1	1.4	17.8	Pass	
	TRACE WP	TF	FB	6000.0		140.56	134.56			1.3	1.3	1.3	5.6	Pass	

FAA Criteria Check Results - ET 19:CR 20:RT 26

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	OBH VORTAC	IF											0	Pass	
	HOWRY WP	TF	FB	11000.0		089.95	083.95	13	Pass	0	0	0.9	67.8	Pass	
Y	BOYSS WP	TF	FB	6000.0		102.96	096.96	37.3	Pass	0.9	0.9	2.3	26.9	Pass	
	TOWRS WP	TF	FB	5000.0		065.71	059.71	99.1	Pass	1.4	1.4	6.4	10.1	Pass	
	NORMA WP	TF	FB	4000.0		326.58	320.58			5	5	5	10.7	Pass	

HOWRY

Created : Tue Jul 06 14:49:47 CDT 2004

Notes:

Landing Omaha Eppley Slant A aircraft shall depart BOYSS on a heading of:
100 degrees to expect Radar Vectors to RWYS 36/32L.
060 degrees to expect Radar vectors to RWYS 14/18.
All other Airports expect Radar vectors after BOYSS.

HOWRY

LANTK

Point Of Contact

ATC Facility Name - R90

POC's Name - Tim Ryan

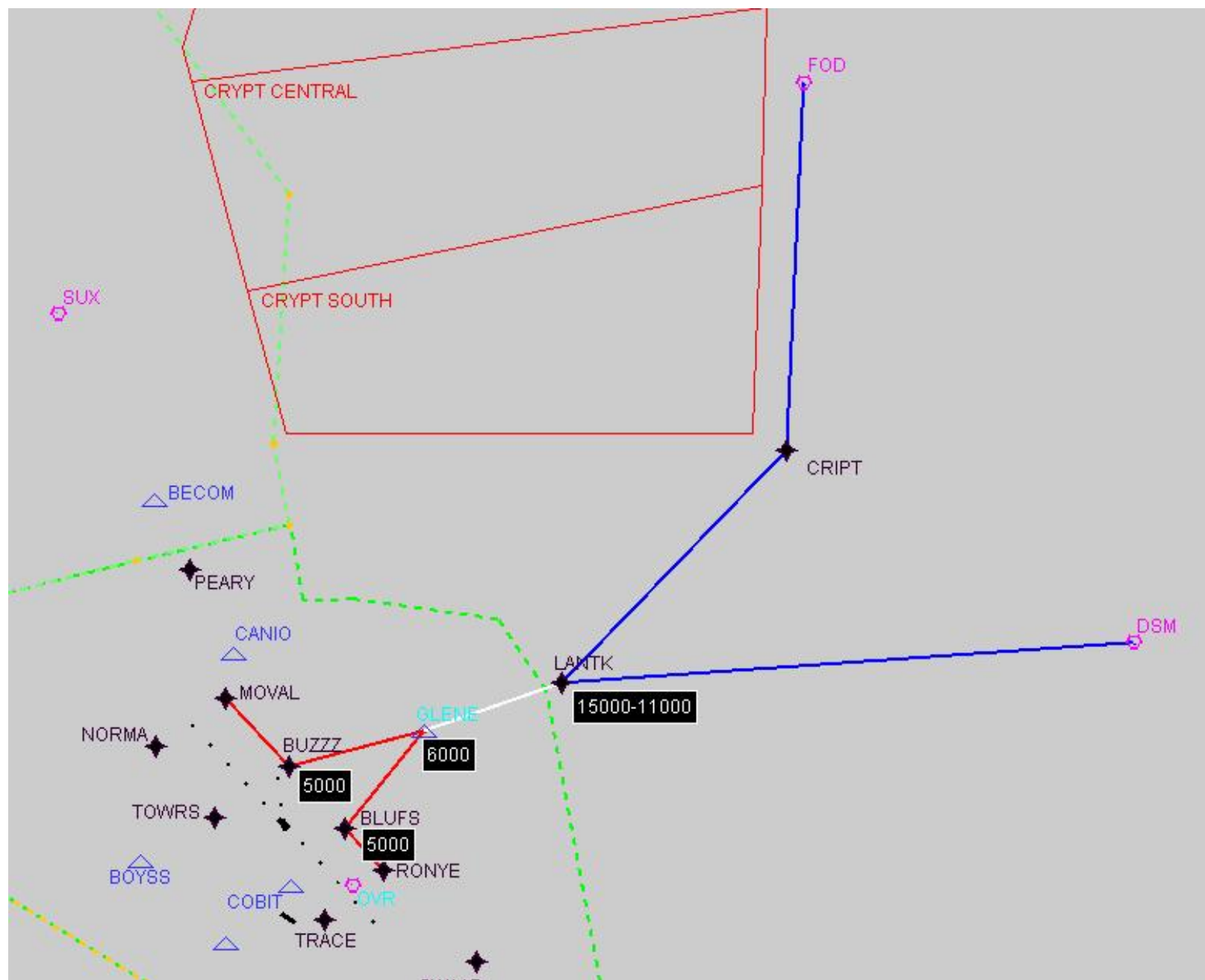
Telephone Number - 402-291-3644

FAX Number - 402-291-0809

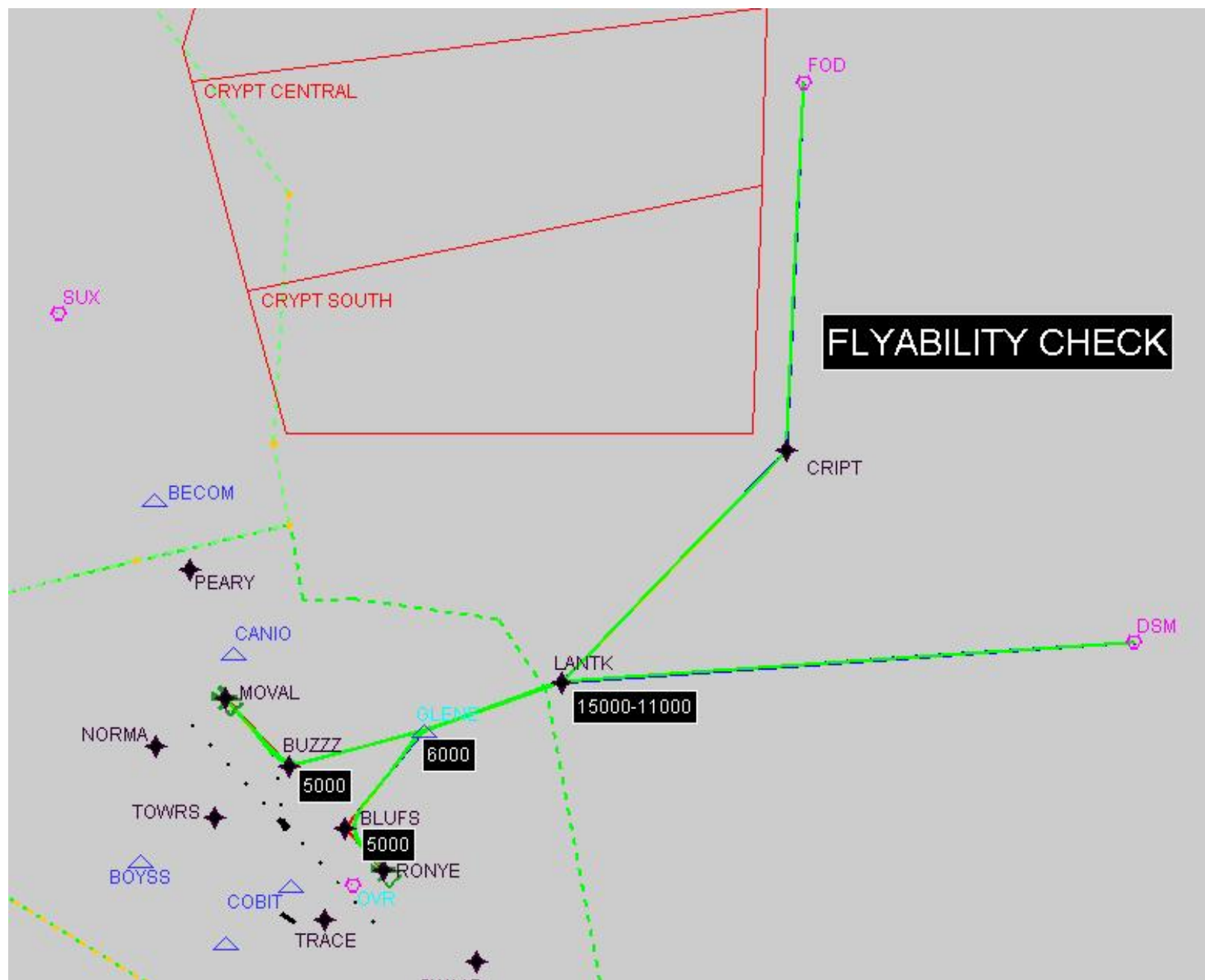
Email Address - tim.m.ryan@faa.gov

TARGETS Distribution Package

LANTK



LANTK



LANTK

En Route Transition Data - ET_LANTK DSM

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	DSM VORTAC		IF		N41 26 15.28	W093 38 54.88		
	LANTK WP	67.07	TF	FB	N41 30 44.75	W095 07 56.47	15000	

En Route Transition Data - ET_LANTK FOD

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	FOD VORTAC		IF		N42 36 40.20	W094 17 41.40		
	CRPT WP	43.21	TF	FB	N41 54 10.08	W094 28 16.21		
	LANTK WP	37.83	TF	FB	N41 30 44.75	W095 07 56.47	15000	

Common Route Data - CR_LANTK

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	LANTK WP		IF		N41 30 44.75	W095 07 56.47	15000	
Y	GLENE WP	17.20	TF	FB	N41 27 04.84	W095 30 17.94	6000	

Runway Transition Data - RT_LANTK RWY 32/36

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	GLENE WP		IF		N41 27 04.84	W095 30 17.94	6000	
	BLUFS WP	14.57	TF	FB	N41 16 53.31	W095 44 07.84	5000	
	RONYE WP	6.60	TF	FB	N41 11 32.93	W095 38 59.29	5000	

Runway Transition Data - RT_LANTK RWY 14/18

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	GLENE WP		IF		N41 27 04.84	W095 30 17.94	6000	
	BUZZZ WP	16.30	TF	FB	N41 24 48.06	W095 51 45.16	5000	
	MOVAL WP	10.94	TF	FB	N41 33 38.72	W096 00 19.35	5000	

LANTK

Created : Tue Jul 06 14:48:11 CDT 2004

Waypoint Data

NFDC	Waypoint	Latitude (Deg)	Longitude (Deg)	Latitude (Deg, Decimal Min)	Longitude (Deg, Decimal Min)	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
	BLUFS WP	N 41.2814741	W 95.7355105	N41 16.89	W95 44.13	N41 16 53.31	W095 44 07.84
	BUZZZ WP	N 41.4133493	W 95.8625434	N41 24.80	W95 51.75	N41 24 48.06	W095 51 45.16
	CRIPT WP	N 41.9027999	W 94.4711687	N41 54.17	W94 28.27	N41 54 10.08	W094 28 16.21
Y	DSM VORTAC	N 41.4375783	W 93.6485783	N41 26.25	W93 38.91	N41 26 15.28	W093 38 54.88
Y	FOD VORTAC	N 42.6111667	W 94.2948333	N42 36.67	W94 17.69	N42 36 40.20	W094 17 41.40
Y	GLENE WP	N 41.4513444	W 95.5049833	N41 27.08	W95 30.30	N41 27 04.84	W095 30 17.94
	LANTK WP	N 41.5124310	W 95.1323527	N41 30.75	W95 07.94	N41 30 44.75	W095 07 56.47
	MOVAL WP	N 41.5607556	W 96.0053738	N41 33.65	W96 00.32	N41 33 38.72	W096 00 19.35
	RONYE WP	N 41.1924801	W 95.6498016	N41 11.55	W95 38.99	N41 11 32.93	W095 38 59.29

FAA Criteria Check Results - ET 67:CR 68:RT 70

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	DSM VORTAC	IF											0	Pass	
	LANTK WP	TF	FB			274.33	268.33	16.5	Pass	0	0	0.6	67.1	Pass	
Y	GLENE WP	TF	FB	6000.0		257.83	251.83	4.3	Pass	0.6	0.6	0.8	17.2	Pass	
	BUZZZ WP	TF	FB	5000.0		262.08	256.08	61.9	Pass	0.2	0.2	2.7	16.3	Pass	
	MOVAL WP	TF	FB	5000.0		323.97	317.97			2.5	2.5	2.5	10.9	Pass	

FAA Criteria Check Results - ET 67:CR 68:RT 71

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	DSM VORTAC	IF											0	Pass	
	LANTK WP	TF	FB			274.33	268.33	16.5	Pass	0	0	0.6	67.1	Pass	
Y	GLENE WP	TF	FB	6000.0		257.83	251.83	32.1	Pass	0.6	0.6	1.8	17.2	Pass	
	BLUFS WP	TF	FB	5000.0		225.71	219.71	81.8	Pass	1.2	1.2	4.9	14.6	Pass	
	RONYE WP	TF	FB	5000.0		143.95	137.95			3.7	3.7	3.7	6.6	Pass	

FAA Criteria Check Results - ET 66:CR 68:RT 70

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	FOD VORTAC	IF											0	Pass	
	CRIPT WP	TF	FB			190.54	184.54	41.4	Pass	0	0	1.6	43.2	Pass	
	LANTK WP	TF	FB			231.99	225.99	25.8	Pass	1.6	1.6	2.6	37.8	Pass	
Y	GLENE WP	TF	FB	6000.0		257.83	251.83	4.3	Pass	1	1	1.1	17.2	Pass	
	BUZZZ WP	TF	FB	5000.0		262.08	256.08	61.9	Pass	0.2	0.2	2.7	16.3	Pass	
	MOVAL WP	TF	FB	5000.0		323.97	317.97			2.5	2.5	2.5	10.9	Pass	

LANTK

FAA Criteria Check Results - ET 66:CR 68:RT 71

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	FOD VORTAC	IF											0	Pass	
	CR IPT WP	TF	FB			190.54	184.54	41.4	Pass	0	0	1.6	43.2	Pass	
	LANTK WP	TF	FB			231.99	225.99	25.8	Pass	1.6	1.6	2.6	37.8	Pass	
Y	GLENE WP	TF	FB	6000.0		257.83	251.83	32.1	Pass	1	1	2.2	17.2	Pass	
	BLUFS WP	TF	FB	5000.0		225.71	219.71	81.8	Pass	1.2	1.2	4.9	14.6	Pass	
	RONYE WP	TF	FB	5000.0		143.95	137.95			3.7	3.7	3.7	6.6	Pass	

LANTK

Created : Tue Jul 06 14:48:11 CDT 2004

Notes:

Landing Omaha Eppley Slant A aircraft will depart LANTK on a heading of 250 to expect Radar Vectors to all runways.
All other Airports expect Radar vectors after GLENE.

LANTK

MARWI

Point Of Contact

ATC Facility Name - R90

POC's Name - Tim Ryan

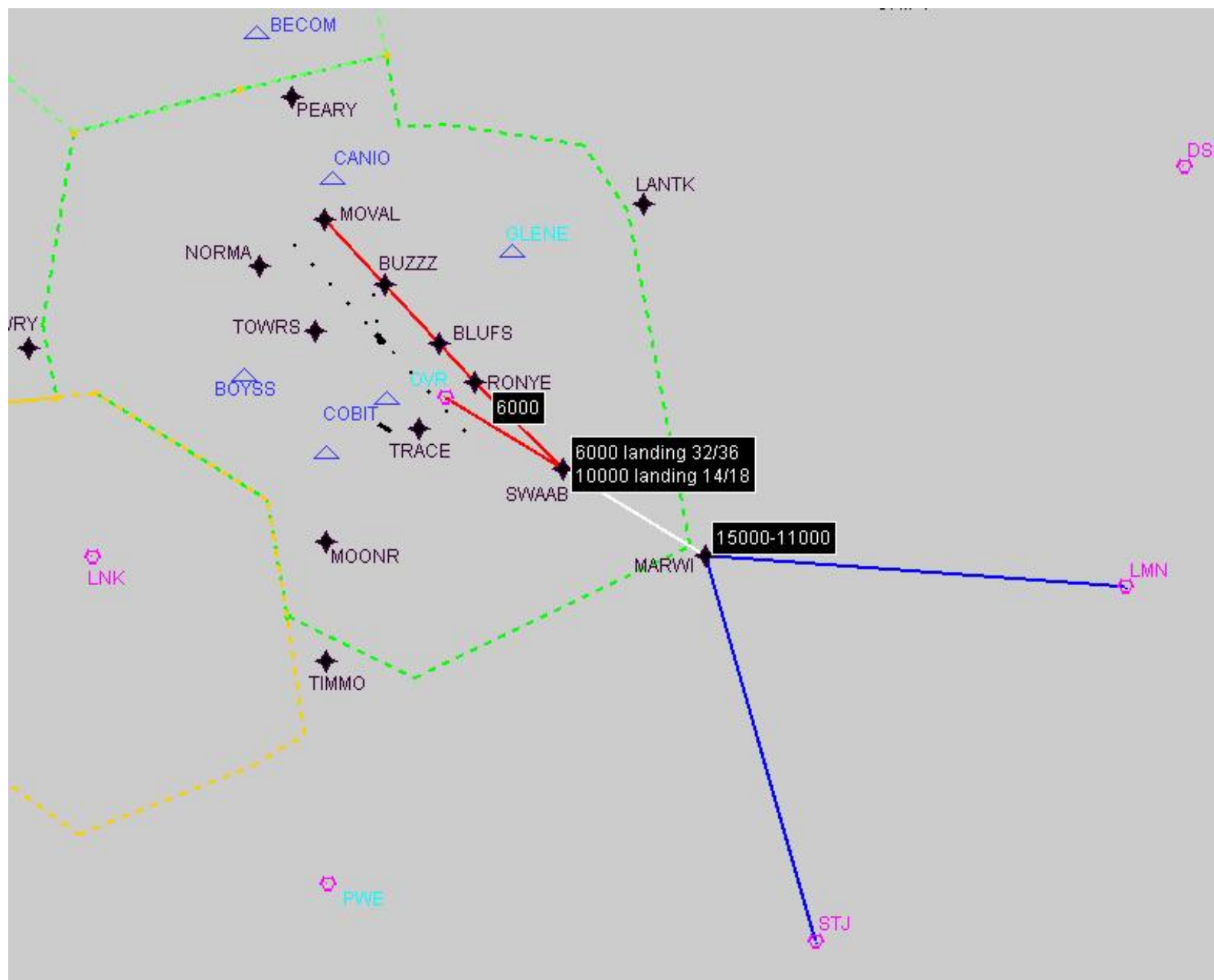
Telephone Number - 402-291-3644

FAX Number - 402-291-0809

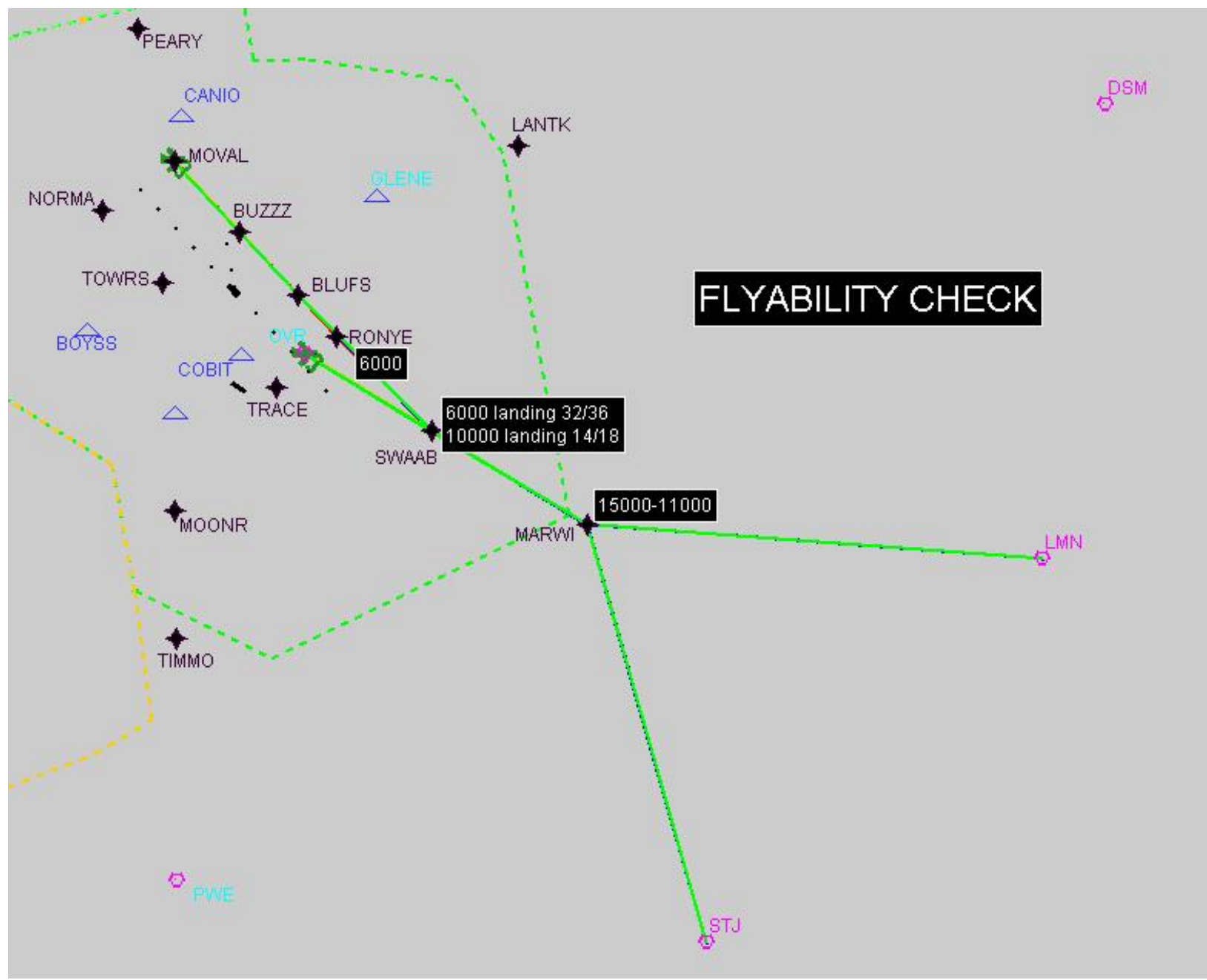
Email Address - tim.m.ryan@faa.gov

TARGETS Distribution Package

MARWI



MARWI



MARWI

En Route Transition Data - ET_MARWI LMN

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	LMN VORTAC		IF		N40 35 48.29	W093 58 03.34		
	MARWI WP	52.12	TF	FB	N40 46 40.68	W095 05 03.96		

En Route Transition Data - ET_MARWI STJ

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	STJ VORTAC		IF		N39 57 38.08	W094 55 30.79		
	MARWI WP	49.55	TF	FB	N40 46 40.68	W095 05 03.96	+11000	

Common Route Data - CR_MARWI

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	MARWI WP		IF		N40 46 40.68	W095 05 03.96		
	SWAAB WP	20.73	TF	FB	N40 59 32.00	W095 26 31.00	6000	

Runway Transition Data - RT_MARWI RWY 14/18

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	SWAAB WP		IF		N40 59 32.00	W095 26 31.00		
	RONYE WP	15.27	TF	FB	N41 11 32.93	W095 38 59.29		
	MOVAL WP	27.31	TF	FB	N41 33 38.72	W096 00 19.35		

Runway Transition Data - RT_MARWI RWY 32/36

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	SWAAB WP		IF		N40 59 32.00	W095 26 31.00		
Y	OVR VORTAC	17.00	TF	FB	N41 10 02.19	W095 44 12.23		

Waypoint Data

NFDC	Waypoint	Latitude (Deg)	Longitude (Deg)	Latitude (Deg, Decimal Min)	Longitude (Deg, Decimal Min)	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
Y	LMN VORTAC	N 40.5967464	W 93.9675953	N40 35.80	W93 58.06	N40 35 48.29	W093 58 03.34
	MARWI WP	N 40.7779670	W 95.0844324	N40 46.68	W95 05.07	N40 46 40.68	W095 05 03.96
	MOVAL WP	N 41.5607556	W 96.0053738	N41 33.65	W96 00.32	N41 33 38.72	W096 00 19.35
Y	OVR VORTAC	N 41.1672761	W 95.7367294	N41 10.04	W95 44.20	N41 10 02.19	W095 44 12.23
	RONYE WP	N 41.1924801	W 95.6498016	N41 11.55	W95 38.99	N41 11 32.93	W095 38 59.29
Y	STJ VORTAC	N 39.9605775	W 94.9252203	N39 57.63	W94 55.51	N39 57 38.08	W094 55 30.79
	SWAAB WP	N 40.9922222	W 95.4419444	N40 59.53	W95 26.52	N40 59 32.00	W095 26 31.00

MARWI

Created : Tue Jul 06 14:46:47 CDT 2004

FAA Criteria Check Results - ET_MARWI STJ:CR _MARWI:RT_MARWI RWY 14/18

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	STJ VORTAC	IF											0	Pass	
	MARWI WP	TF	FB			351.58	345.58	43.2	Pass	0	0	1.7	49.5	Pass	
	SWAAB WP	TF	FB	6000.0		308.41	302.41	13.5	Pass	1.7	1.7	2.2	20.7	Pass	
	RONYE WP	TF	FB			321.93	315.93	2.2	Pass	0.5	0.5	0.6	15.3	Pass	
	MOVAL WP	TF	FB			324.09	318.09			0.1	0.1	0.1	27.3	Pass	

FAA Criteria Check Results - ET_MARWI STJ:CR _MARWI:RT_MARWI RWY 32/36

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	STJ VORTAC	IF											0	Pass	
	MARWI WP	TF	FB			351.58	345.58	43.2	Pass	0	0	1.7	49.5	Pass	
	SWAAB WP	TF	FB	6000.0		308.41	302.41	0.2	Pass	1.7	1.7	1.7	20.7	Pass	
Y	OVR VORTAC	TF	FB			308.22	302.22			0	0	0	17	Pass	

FAA Criteria Check Results - ET_MARWI LMN:CR _MARWI:RT_MARWI RWY 14/18

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	LMN VORTAC	IF											0	Pass	
	MARWI WP	TF	FB			282.40	276.40	26	Pass	0	0	1	52.1	Pass	
	SWAAB WP	TF	FB	6000.0		308.41	302.41	13.5	Pass	1	1	1.5	20.7	Pass	
	RONYE WP	TF	FB			321.93	315.93	2.2	Pass	0.5	0.5	0.6	15.3	Pass	
	MOVAL WP	TF	FB			324.09	318.09			0.1	0.1	0.1	27.3	Pass	

FAA Criteria Check Results - ET_MARWI LMN:CR _MARWI:RT_MARWI RWY 32/36

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	LMN VORTAC	IF											0	Pass	
	MARWI WP	TF	FB			282.40	276.40	26	Pass	0	0	1	52.1	Pass	
	SWAAB WP	TF	FB	6000.0		308.41	302.41	0.2	Pass	1	1	1	20.7	Pass	
Y	OVR VORTAC	TF	FB			308.22	302.22			0	0	0	17	Pass	

MARWI

Created : Tue Jul 06 14:46:47 CDT 2004

Notes:

Landing Omaha Eppley 32L/32R/36 Aircraft will cross SWAAB at 6000 MSL.

Landing Omaha Eppley 14R/14L/18 Aircraft will cross SWAAB at 10000 MSL.

Landing Omaha Eppley Slant A aircraft landing RWY 14/18 shall depart SWAAB heading 310 degrees to expect Radar vectors.

All other Airports expect Radar vectors after SWAAB.

MARWI

PEARY

Point Of Contact

ATC Facility Name - R90

POC's Name - Tim Ryan

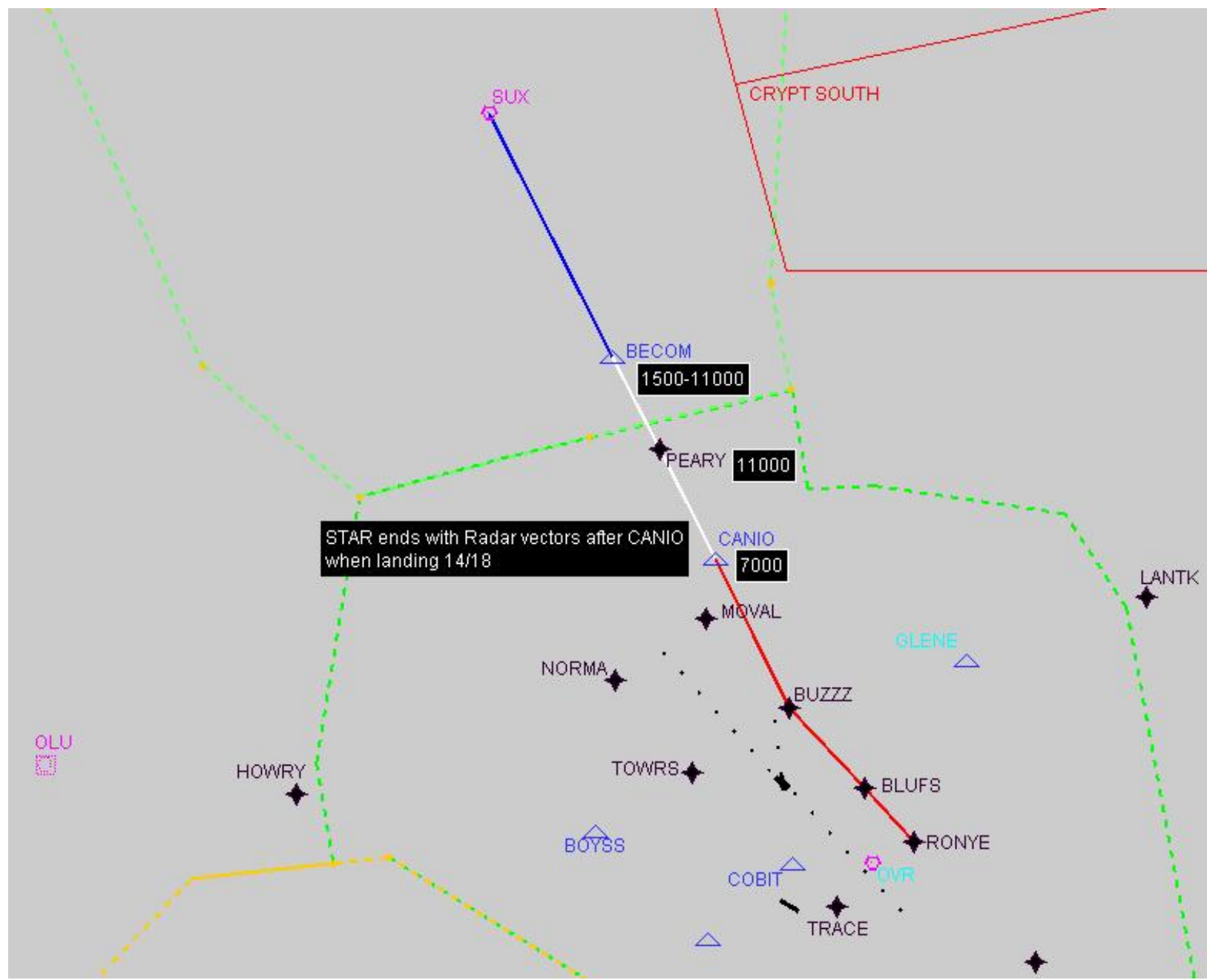
Telephone Number - 402-291-3644

FAX Number - 402-291-0809

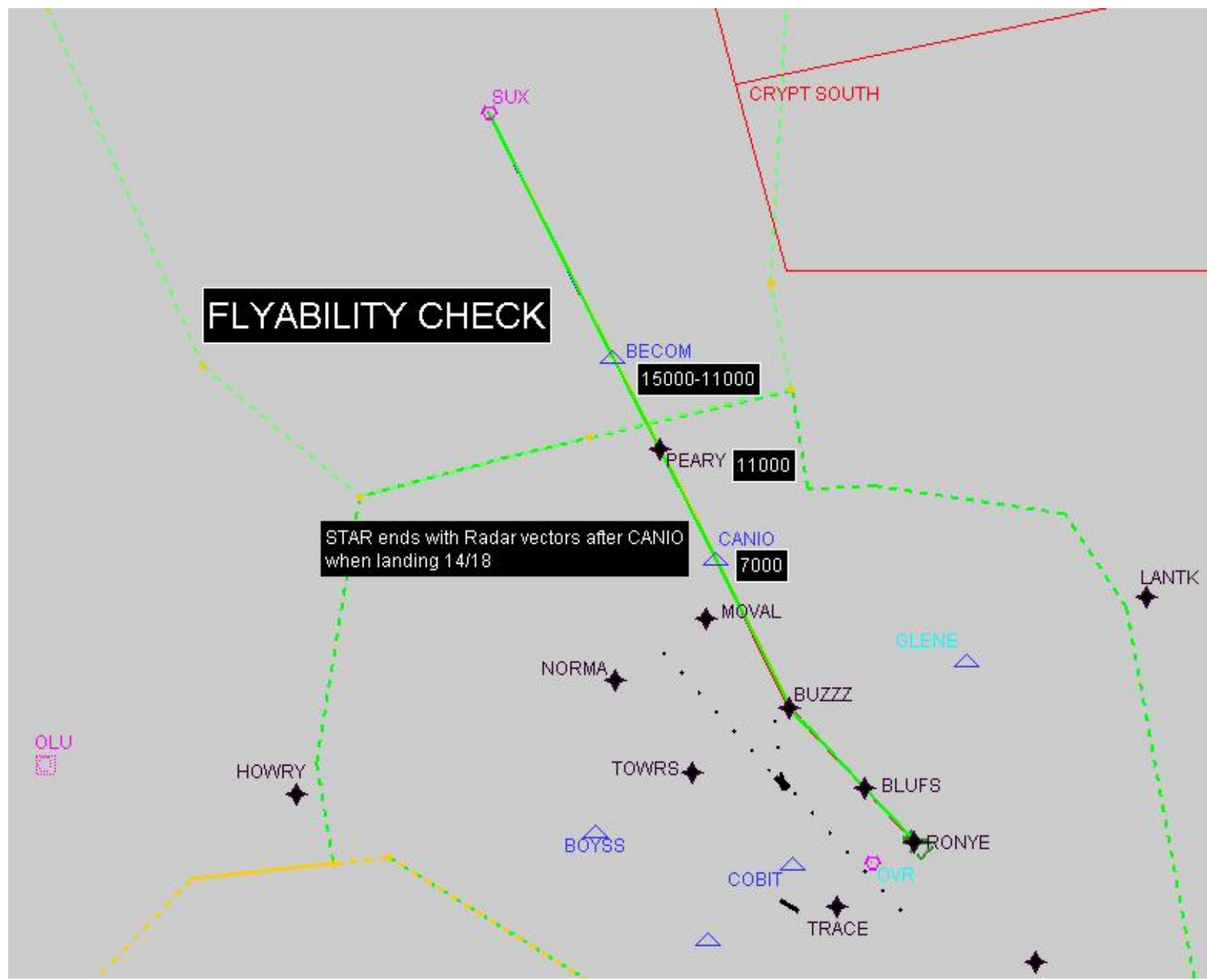
Email Address - tim.m.ryan@faa.gov

TARGETS Distribution Package

PEARY



PEARY



PEARY

En Route Transition Data - ET_PEARLY SUX

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	SUX VORTAC		IF		N42 20 40.27	W096 19 25.10		
Y	BECOM WP	24.41	TF	FB	N41 57 48.70	W096 07 52.13		

Common Route Data - CR_PEARLY

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	BECOM WP		IF		N41 57 48.70	W096 07 52.13	11000	
	PEARY WP	9.24	TF	FB	N41 49 09.76	W096 03 29.95	11000	
Y	CANIO WP	11.04	TF	FB	N41 38 48.53	W095 58 22.88	7000	

Runway Transition Data - RT_PEARLY_RWY 32-36

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	CANIO WP		IF		N41 38 48.53	W095 58 22.88		
	BUZZZ WP	14.86	TF	FB	N41 24 48.06	W095 51 45.16	7000	
	BLUFS WP	9.77	TF	FB	N41 16 53.31	W095 44 07.84		
	RONYE WP	6.60	TF	FB	N41 11 32.93	W095 38 59.29		

Waypoint Data

NFDC	Waypoint	Latitude (Deg)	Longitude (Deg)	Latitude (Deg, Decimal Min)	Longitude (Deg, Decimal Min)	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
Y	BECOM WP	N 41.9635278	W 96.1311472	N41 57.81	W96 07.87	N41 57 48.70	W096 07 52.13
	BLUFS WP	N 41.2814741	W 95.7355105	N41 16.89	W95 44.13	N41 16 53.31	W095 44 07.84
	BUZZZ WP	N 41.4133493	W 95.8625434	N41 24.80	W95 51.75	N41 24 48.06	W095 51 45.16
Y	CANIO WP	N 41.6468139	W 95.9730222	N41 38.81	W95 58.38	N41 38 48.53	W095 58 22.88
	PEARY WP	N 41.8193791	W 96.0583207	N41 49.16	W96 03.50	N41 49 09.76	W096 03 29.95
	RONYE WP	N 41.1924801	W 95.6498016	N41 11.55	W95 38.99	N41 11 32.93	W095 38 59.29
Y	SUX VORTAC	N 42.3445203	W 96.3236386	N42 20.67	W96 19.42	N42 20 40.27	W096 19 25.10

FAA Criteria Check Results - ET 73:CR 75:RT 76

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	SUX VORTAC	IF		17000.0									0	Pass	
Y	BECOM WP	TF	FO	11000.0		159.33	153.33	0	Pass	0	0	0	24.4	Pass	
	PEARY WP	TF	FO	11000.0		159.29	153.29	0.4	Pass	9.2	9.2	9.2	9.2	Pass	
Y	CANIO WP	TF	FO	7000.0		159.65	153.65	0.7	Pass	9.2	9.2	9.2	11	Pass	
	BUZZZ WP	TF	FO	7000.0		160.39	154.39	16.4	Pass	6.3	6.3	6.3	14.9	Pass	
	BLUFS WP	TF	FO			143.98	137.98	0	Pass	6.3	6.3	6.3	9.8	Pass	
	RONYE WP	TF	FO			143.95	137.95			6.3	6.3	6.3	6.6	Pass	

PEARY

Notes:

Landing Omaha Eppley Slant A aircraft shall depart CANIO on a heading of:
210 degrees to expect Radar vectors when landing RWY 14.
145 degrees to expect Radar vectors when landing RWY 18/32/36
All other airports expect Radar Vectors after PEARY.

PEARY

TIMMO

Point Of Contact

ATC Facility Name - R90

POC's Name - Tim Ryan

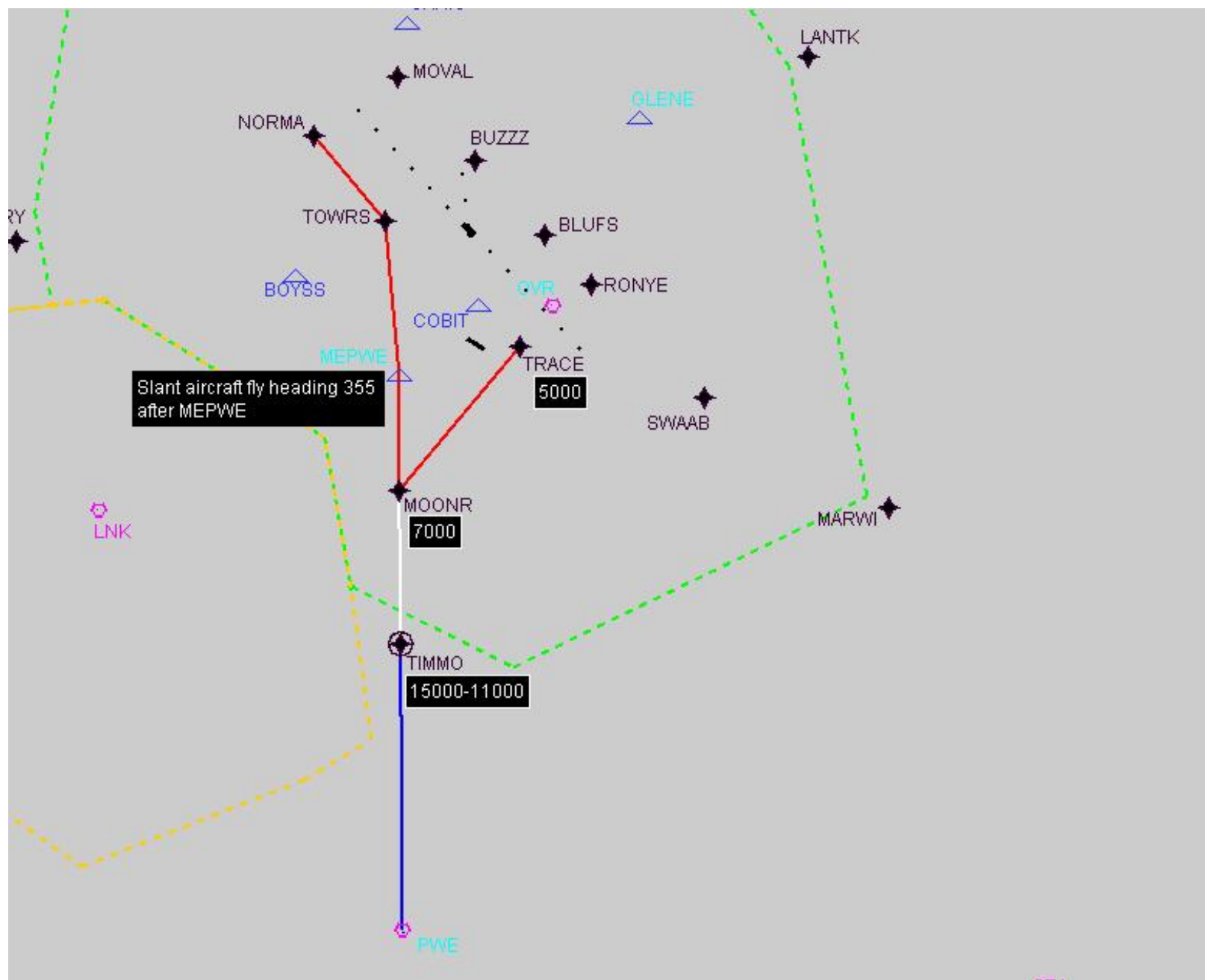
Telephone Number - 402-291-3644

FAX Number - 402-291-0809

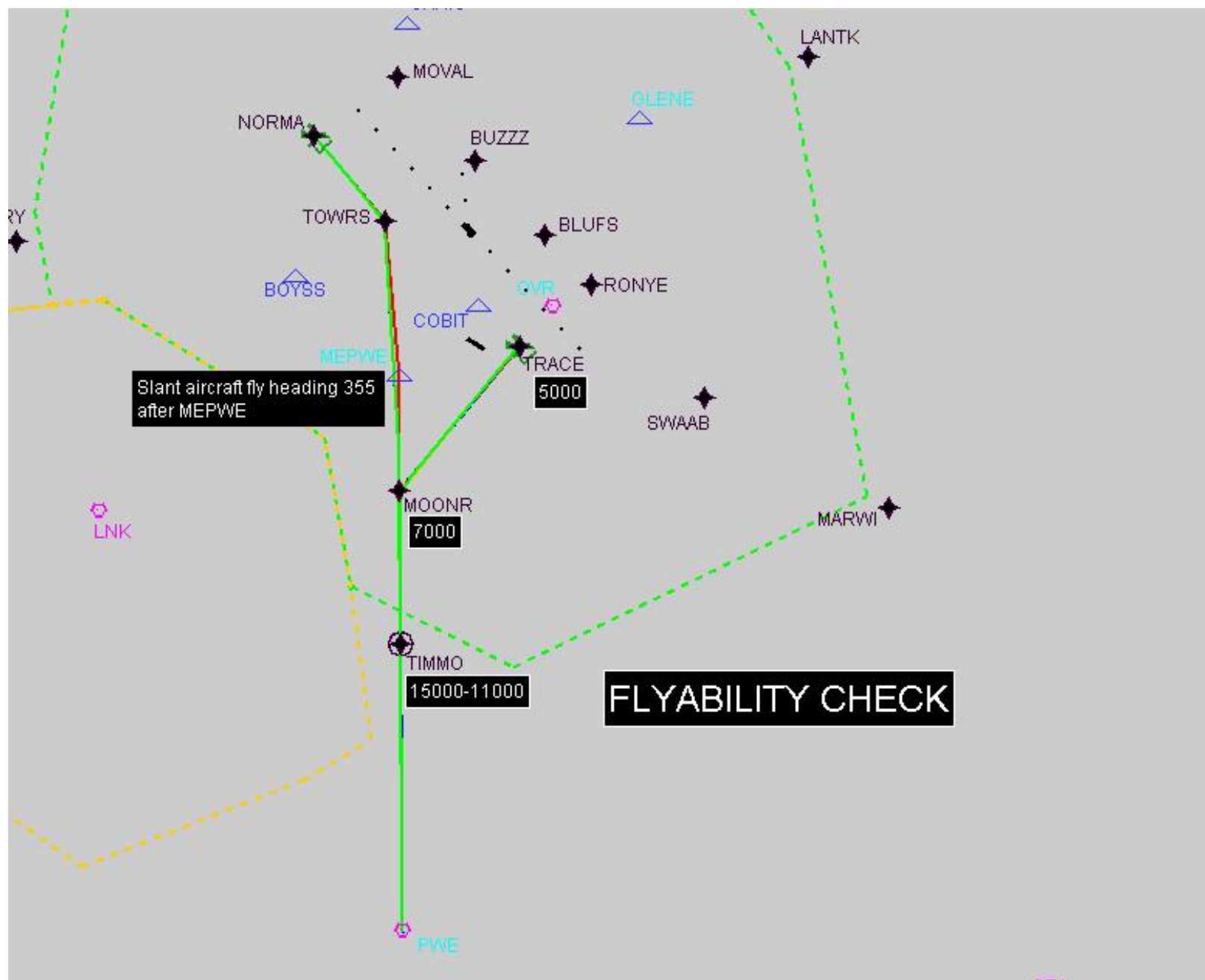
Email Address - tim.m.ryan@faa.gov

TARGETS Distribution Package

TIMMO



TIMMO



TIMMO

En Route Transition Data - ET_TIMMO PWE

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
Y	PWE VORTAC		IF		N40 12 01.27	W096 12 22.61		
	TIMMO WP	27.57	TF	FO	N40 39 26.53	W096 08 24.45	11000	

Common Route Data - CR_TIMMO

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	TIMMO WP		IF		N40 39 26.53	W096 08 24.45		
	MOONR WP	14.66	TF	FB	N40 54 01.28	W096 06 16.54		

Runway Transition Data - RT_TIMMO RWY 14/18

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	MOONR WP		IF		N40 54 01.28	W096 06 16.54		
Y	MEPWE WP	11.20	TF	FB	N41 05 09.57	W096 04 37.99	7000	
	TOWRS WP	14.87	TF	FB	N41 20 02.26	W096 04 09.69	7000	
	NORMA WP	10.74	TF	FB	N41 28 59.92	W096 12 01.66		

Runway Transition Data - RT_TIMMO RWY 32/36

NFDC	Waypoint	Distance	Leg	FO/FB	Latitude	Longitude	Altitude	Speed
	MOONR WP		IF		N40 54 01.28	W096 06 16.54		
	TRACE WP	18.13	TF	FB	N41 06 34.42	W095 48 59.02	5000	

Waypoint Data

NFDC	Waypoint	Latitude (Deg)	Longitude (Deg)	Latitude (Deg, Decimal Min)	Longitude (Deg, Decimal Min)	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
Y	MEPWE WP	N 41.0859917	W 96.0772194	N41 05.16	W96 04.63	N41 05 09.57	W096 04 37.99
	MOONR WP	N 40.9003545	W 96.1045946	N40 54.02	W96 06.28	N40 54 01.28	W096 06 16.54
	NORMA WP	N 41.4833118	W 96.2004606	N41 29.00	W96 12.03	N41 28 59.92	W096 12 01.66
Y	PWE VORTAC	N 40.2003528	W 96.2062811	N40 12.02	W96 12.38	N40 12 01.27	W096 12 22.61
	TIMMO WP	N 40.6573696	W 96.1401239	N40 39.44	W96 08.41	N40 39 26.53	W096 08 24.45
	TOWRS WP	N 41.3339610	W 96.0693586	N41 20.04	W96 04.16	N41 20 02.26	W096 04 09.69
	TRACE WP	N 41.1095614	W 95.8163938	N41 06.57	W95 48.98	N41 06 34.42	W095 48 59.02

TIMMO

Created : Tue Jul 06 14:42:44 CDT 2004

FAA Criteria Check Results - ET 42:CR 43:RT 46

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	PWE VORTAC	IF											0	Pass	
	TIMMO WP	TF	FO			006.29	000.29	0	Pass	0	0	0	27.6	Pass	
	MOONR WP	TF	FB			006.33	000.33	39.8	Pass	9.2	9.2	10.7	14.7	Pass	
	TRACE WP	TF	FB	5000.0		046.13	040.13			1.5	1.5	1.5	18.1	Pass	

FAA Criteria Check Results - ET 42:CR 43:RT 45

NFDC	WP	Leg	FO/FB	Alt	Spd	TC	MC	Turn Angle	Turn Angle Chk	DTA1	DTA2	FAA Min Seg	Avail. Distance	Segment Length Chk	Climb Descent/Decel
Y	PWE VORTAC	IF											0	Pass	
	TIMMO WP	TF	FO			006.29	000.29	0	Pass	0	0	0	27.6	Pass	
	MOONR WP	TF	FB			006.33	000.33	0	Pass	9.2	9.2	9.2	14.7	Pass	
Y	MEPWE WP	TF	FB	7000.0		006.37	000.37	5	Pass	0	0	0.2	11.2	Pass	
	TOWRS WP	TF	FB	7000.0		001.37	355.37	34.8	Pass	0.2	0.2	1.5	14.9	Pass	
	NORMA WP	TF	FB			326.58	320.58			1.3	1.3	1.3	10.7	Pass	

TIMMO

Created : Tue Jul 06 14:42:44 CDT 2004

Notes:

Landing at Omaha Eppley Slant A aircraft landing 14/36 depart MEPWE heading 355 to expect Radar vectors.
All other airports expect Radar vectors after MOONR.

TIMMO